RAILROADING IN NEW JERSEY

RAILROADING IN NEW JERSEY

by
John T. Cunningham

A series of seventeen articles written for the magazine of The Newark Sunday News January 7, to April 29, 1951

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About the Author

Author John T. Cunningham did a remarkably thorough job of digging back through the years for the revealing material he presents.

It is this very thoroughness, coupled with an innate acumen, that has helped him acquire a knowledge of railroading in New Jersey not usually found in one thirty-six years of age.

Mr. Cunningham's interest in his subject is a sincere—and natural—one. A New Jerseyan through and through, he was born in Newark and now lives at Florham Park. As a boy, he knew Brookside, a rural community near Mendham, as his home, and he later lived at Morristown, Dover and Berkeley Heights. He is a graduate of Morristown High School and of Drew University at Madison, N. J.

Essentially a newspaperman, he began his career with the *Morristown Record*, and since 1940 has been a reporter for the *Newark News*. For four years, he has written the "Let's Explore" series in the newspaper's Sunday roto magazine. This series describes interesting motor trips throughout New Jersey and has won two prizes.

Besides his regular work, Mr. Cunningham contributes to magazines in the transportation field, including *Trains, Railway Progress, Ships & Sailing and Wheels.*

During four years in World War II, Mr. Cunningham was a captain in the Army Air Force. He is married and has one son.

Hoy M. Felmly

Contemporary painting shows the Stevens locomotive of 1825 chugging around circular track on "The Green" at Castle Point, now the site of Hoboken's City Hall.

Father of American Railroads

Dream of Jerseyman Who Established First Steam Ferry on the Hudson Came True With Operation of 'Steam Waggon' Line in 1825

COLONEL JOHN STEVENS wrote furiously as the first warm winds of the Spring of 1812 swept into the study of his Hoboken mansion. His gray eyes flashed angrily as he paused to reflect on the reception his dream of a steam railroad had met in the past year.

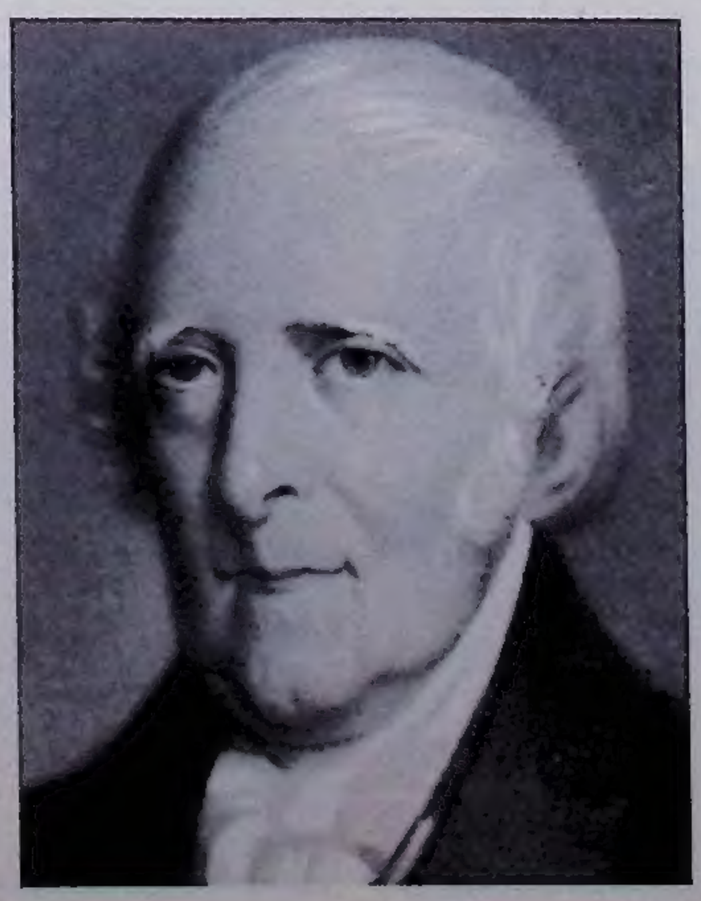
The Jersey colonel now was taking his vision of a railroad to the people as he scratched through the pages of his "Documents Tending to Prove the Superior Advantages of Railway and Steam Carriages over Canal Navigation." This was the only way—maybe the people could help; certainly no one in an official capacity would do more than listen politely.

He leaned back from his desk and closed his eyes. Flooding back came the memory of his plea for a railroad charter before the New Jersey Legislature in 1811. Even now he could see the faces, could remember the incredulity—yes, the pity—with which they discussed his scheme of a steam railway thundering across the state.

Colonel Stevens had reason to expect more than a polite hearing from the New Jersey Legislature. Many of them were his friends, some were relatives. Even those who had never seen him knew about him; knew of his distinguished Revolutionary War record, his successful experiments with steam engines, his early fight for a patent law.

After all, he was no Johnny-come-lately in the field of transportation,

Col. John Stevens from a portrait made at the time he visualized railroading's future in his famous 1812 "Documents".



no fanatic. He had established the world's first steam ferry in the Hudson River and his "Phoenix" had been the first steamboat to venture into the open sea.

But there was no charter. He could remember the long stage ride home from Trenton over roads rutted and ruined by the heavy wagons lumbering westward laden with supplies for settlers beyond the Delaware. Often the stage was stopped by droves of sheep and pigs being herded to market across state. It was five hours before he was back at Stevens Villa.

Was this the way to develop the West? Was this the way to move people to the Mississippi and beyond to the great territory Thomas Jefferson had added to the United States in 1803?

Lord, Colonel Stevens figured, it would take six or eight months to get to the Pacific Ocean at that rate! Why it took a week of a man's time if he wanted to go from Philadelphia to Boston—and that in the most modern carriages over the nation's best turnpikes.

And the cost! He rummaged around in his desk for the figures—$125 per ton from Philadelphia to Pittsburgh; prohibitive rates even on short hauls. Here was a nation beginning to burst at its industrial seams, with a great new market building west of the Alleghanies, and no way to link the maker with the buyer.

There was no disagreement on the score that turnpikes couldn't carry

ridiculous thought that steam could be used to haul passengers or freight. "Why if the contraption doesn't blow up it will terrify livestock to death," wrote one. Cartoons showed to what horrible lengths steam might come, with steam-driven carriages mingling in chaotic confusion with snorting steam-driven individual carts.

Railroads and expansion to the West soon became a matter of little import, however. The first seamen had been impressed by British warships. The first cannon were booming the announcement that the United States was again at war with mighty Great Britain.

Colonel Stevens turned his thoughts to armor-piercing projectiles, but Army and Navy brass weren't snatching up new ideas. Interestingly enough, Stevens decided to try to sell the projectile idea to a foreign nation and he chose the "one nation unlikely ever to go to war with the United States"—Russia! Russia didn't buy it.

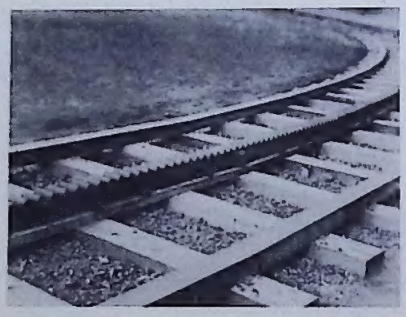
The successful end of the war brought converts to the Jerseyman's thinking. The fledgling nation—secretly not too sure of itself until it licked the British the second time around—was ready to move. Difficulties in moving troops and supplies during the war had become evident.

Now, too, the nation was experiencing the full pains of its growing industrial might. Now, more than ever, quick ways had to be found to reach the West.

Moreover, George Stephenson had started working on his first steam locomotive in Great Britain and produced his first crude model in 1814, at about the same time John Stevens, now 65 years old, was tramping across the state making the first railroad survey.

Colonel John's journal reveals the lack of development in the area through which he proposed to run the railroad:

Starting at "Lower Landing," he struck out through woods and fields to Cranbury, thence to Trenton by way of ". . . the Devil's Brook, the Hide's Town road, and so to Princeton, up to Rowland's Tavern and the



Closeup of "third" rail which was engaged by the engine's spur wheel to provide the necessary propulsion.

Ten Mile Stone; past the Quaker Wood by Jacob Haw's stable. . ."

In Trenton the colonel stopped in the Steamboat Hotel and treated himself to a well-earned "whisky and cider."

The following year, on February 6, 1815, he got his New Jersey charter—first in the United States. Significantly, no mention was made of the type of motive power. Wily old John was playing down steam in public. If he could get his rails laid, use horses for a while, then maybe someday . . .

It really didn't make any difference what power he proposed. The capitalists of New York and Philadelphia weren't buying anything in the railroad line — horse-drawn, steam-drawn or spirit-driven.

Stevens kept knocking on doors, writing letters, imploring politicians for a hearing. He suggested a short line in Washington, D. C.; tried to interest Southern promoters; walked 73 miles to lay out a proposed railroad from Philadelphia to Columbia, Pa., and kept after DeWitt Clinton to build a New York railroad.

Clinton answered occasionally—and cautiously. In 1824 he mailed a note and inclosed a clipping telling about plans for a railroad in England. "If that succeeds," Clinton wrote with admirable restraint, "Then there should be no difficulty in realizing your views!"

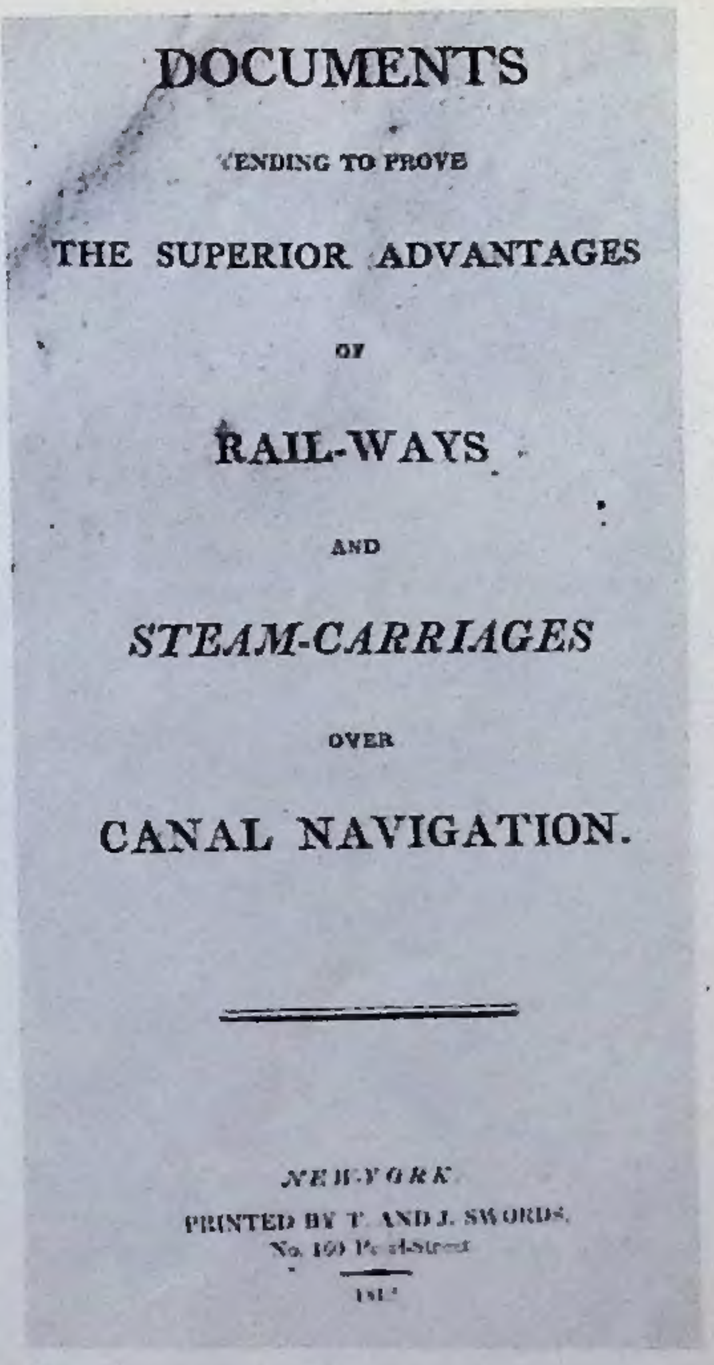
This time Stevens laughed.

He knew that all the politicians and money men needed to be able to see his vision was to have the vision actually running before their eyes. Accordingly, in 1825 he built the country's first locomotive and ran it around a circular track at Hoboken.

It wasn't much of a locomotive, as today's monsters go. He called it simply, "The Steam Waggon," and visitors to Stevens Villa had to batten down their beavers or tuck in their skirts and ride behind the

Costumed for the November, 1928, occasion, John Stevens 7th, and cousin Emily L. Stevens, board a working model of the original locomotive. Second from left is Dr. Davis. Right: The "steam carriage" gets under way.

Reproduction of an 1832 map shows railroads and canals built or planned at that time. The secondary role which railroads were expected to play is well shown.


DOCUMENTS

TENDING TO PROVE

THE SUPERIOR ADVANTAGES

OF

RAIL-WAYS

AND

STEAM-CARRIAGES

OVER

CANAL NAVIGATION.

NEW-YORK.

PRINTED BY T. AND J. SWORDS,

No. 160 Pearl-street

1812

Front Cover of Colonel John Stevens' vitally-important 1812 "Documents".

snorting beast. It took courage, too—as much courage as it would take to ride today in a rocket ship.

The Stevens railroad was simple. The 16-foot "Steam Waggon" was run by a steam-driven gear which meshed into a rack between the tracks (wooden rails covered with strips of iron). One section of the 630-foot long track was deliberately raised 30 inches on one end to prove the engine could run up hill.

Around and around at 12 miles per hour rode hardy visitors, ever fearful that the spark-throwing demon would split its sides and blow them to their destiny. Many refused to go near the work of the devil.

The "Steam Waggon" proved the point. It was to be six years before New Jersey started to build its first railroad. By then three others were in operation of a sort in various parts of the East—South Carolina, New York and Maryland.

Public enthusiasm for railroads far outran that of the legislators, most of whom still favored canals. The Erie Canal was placed in operation the same year the "Steam Waggon" ran, and work started at about the same time on the Morris Canal.

Colonel John wasn't even represented on the directors of New Jersey's first commercial railroad, the Camden and Amboy, chartered in 1831. Rather, it was his son, Robert L. Stevens, who spearheaded that movement. It has been said that Colonel John was the dreamer, Colonel Robert the doer.

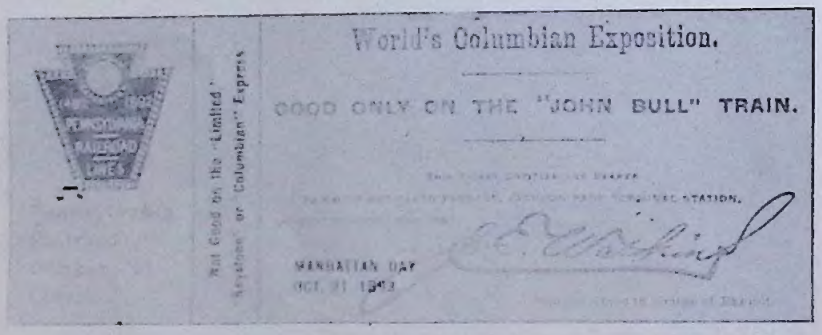
Be that as it may, the old colonel was overjoyed with the charter and when the Camden and Amboy's first locomotive arrived in this state in August, 1831, he threw a monster party to celebrate. Then 82, his spirits were "as sparkling and abundant as the champagne."

He lived to be 89 years old, and when he died in 1839 railroads were beginning to honeycomb the state and the East and men were even talking about steam lines clear across the country. All of the fancy and dreaming was in other hands and hearts. The "Steam Waggon" knew no bounds.

Ironically, this man who fathered America's railroads without ever having seen a locomotive apparently died without ever having ridden on a real railroad. The railroad an accomplished fact, his facile mind had turned elsewhere. He was trying to get people to listen to a proposal to finance education and start a state university out of railroad taxes!

The state university was as far ahead of the times as some of Colonel John's other proposals. However, a son, Edward, was to make part of that dream come true in 1869 when he endowed Stevens Institute in Hoboken, close to the spot where the "Steam Waggon" ran to coax others into the colonel's vision.

A relic of the state's first railroading days, the C.&A. "No. 1", is shown on its siding at the World's Columbian Exposition at Chicago in 1893. The two coaches behind the "John Bull" are 1836 models. One is the original car, rescued after it served for many years as a chicken coop in South Amboy. It was restored for the trip to Chicago. Reproduced below is a copy of a ticket used at the Exposition to permit visitors to ride in this historic railroad train.



"twisted and crooked as snakes." Stevens stayed with him and between them they devised a method of straightening the rails while they were still hot. In May, 1831, the first of 23 ships laden with the 16-foot, 36-pound rails sailed for Bordentown. One of the packets never arrived—its bottom was pounded out off the coast by the heavy rails.

Stevens tarried in England only long enough to watch George Stephenson and his son test their new locomotive, the "Planet." He ordered a similar engine, the "John Bull," and headed home.

Bordentown was hot and humid on the August day in 1831 when the "John Bull" arrived. The wharf of the little river village was crowded as Bordentown folk gathered to see the English devil.

They were doomed to disappointment. Instead of an engine the ship's master put ashore only a mound of packing crates. The "John Bull" was in pieces—and there were no drawings to guide the ingenious 22-year-old Yankee, Isaac Dripps, assigned to put the "Bull" together.

Young Dripps had never even seen a locomotive and had only limited experience with steamboat engines. Yet in his hands the pieces began to take shape; early in November the 10-ton engine stood on the tracks outside of Bordentown. A tender improvised from a flat car carried a whisky barrel as a water tank and a Bordentown shoemaker cut and sewed short lengths of leather hose to carry water to the boilers.

Bordentown's shaded streets were a trying place for serious young Dripps. Comments ranged from goodnatured ridicule to open hostility. Village loafers made great fun at the expense of the "iron horse" and its "keepers."

Most people were still frankly skeptical that a hulk of iron could be moved by steam. "It's like a tea kettle," ran one argument. "What if the kettle lid does flop up and down when it steams? The kettle doesn't move, no matter how hot the fire, no matter how full the kettle."

Nevertheless, the river front was agog on November 12, 1831, the day "John Bull" was to be unleashed. State legislators had been invited to risk their necks in the carriage behind the "John Bull." Every one from miles around who could move was in "Mile Hollow," where the test was to be made, and even those who feared or hated the engine were willing to file by the long tables

No grade crossing—the archway of a Camden & Amboy overpass at Bordentown.

laden with hot oyster soup and other refreshments. (Stevens thus probably qualified as the first railroad public relations man, too).

When Dripps and fireman Ben Higgins boarded the "John Bull" the timid moved back from the explosion they believed imminent. Some of the legislators had to overcome a similar powerful wish to retreat before they climbed aboard the coaches.

Dripps pumped the boiler full of water as Higgins tossed great chunks of pine wood into the firebox. Black smoke puffed from the stack, wood ashes settled on the crowd. The steam scale edged up. At the precise instant when it hit 30 pounds Dripps opened the throttle. Off moved "John Bull."

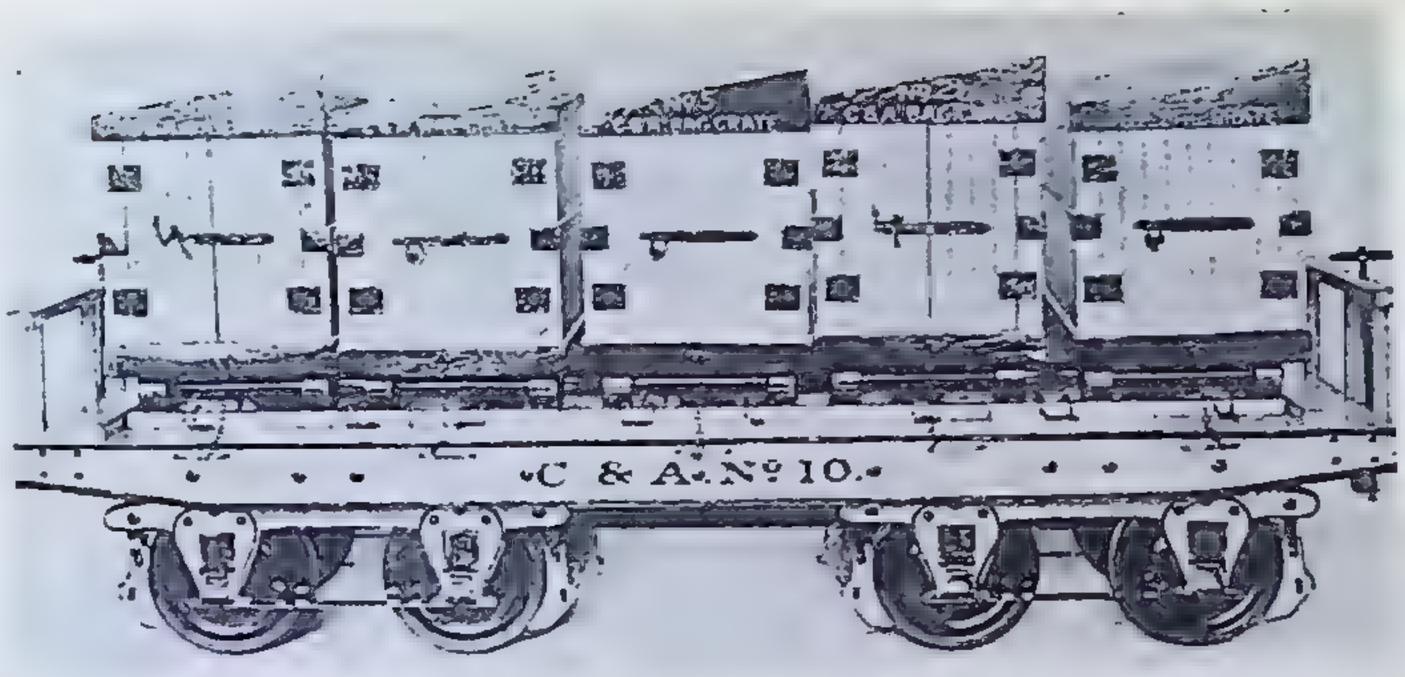
Officialdom satisfied, Stevens offered a ride to all comers. Up stepped bubbling, eye-filling Madame Murat, wife of Prince Murat and niece by marriage of Napoleon, determined to be the first woman in New Jersey to ride on a steam railway. She gathered her skirts and mounted the steps to the high coach, with just a hint of ankle showing. Even in 1831 a pretty girl was an asset for the maiden run of a new train.

The New Jersey Gazette said the legislators were "gratified" with the railroad, which drew the coaches "with great velocity." When the railroad was finished to Amboy, the Gazette speculated, it would travel at "the rate of a mile in two minutes—and some say less!"

Rails reached Hightstown in the Fall of 1832 and carriage-like passenger cars seating 18 passengers were put in operation, gliding "in fine style rapidly along the rails, drawn by two horses in tandem harness," the Gazette said.

Stone blocks were coming through slowly from Sing Sing Prison, and Stevens, anxious to reach Amboy by Winter, resorted in desperation in the Amboy cut to logs laid across the line. Broken rock was solidly packed around the logs. Thus, by accident (and the slowness of prison workmen) Stevens devised the modern road bed.

Stevens and Dripps also gave the country its first "cow catcher," again somewhat by accident. They found their engine had difficulty staying on the rails on curves because of its short wheelbase and devised a pilot to run out in front.



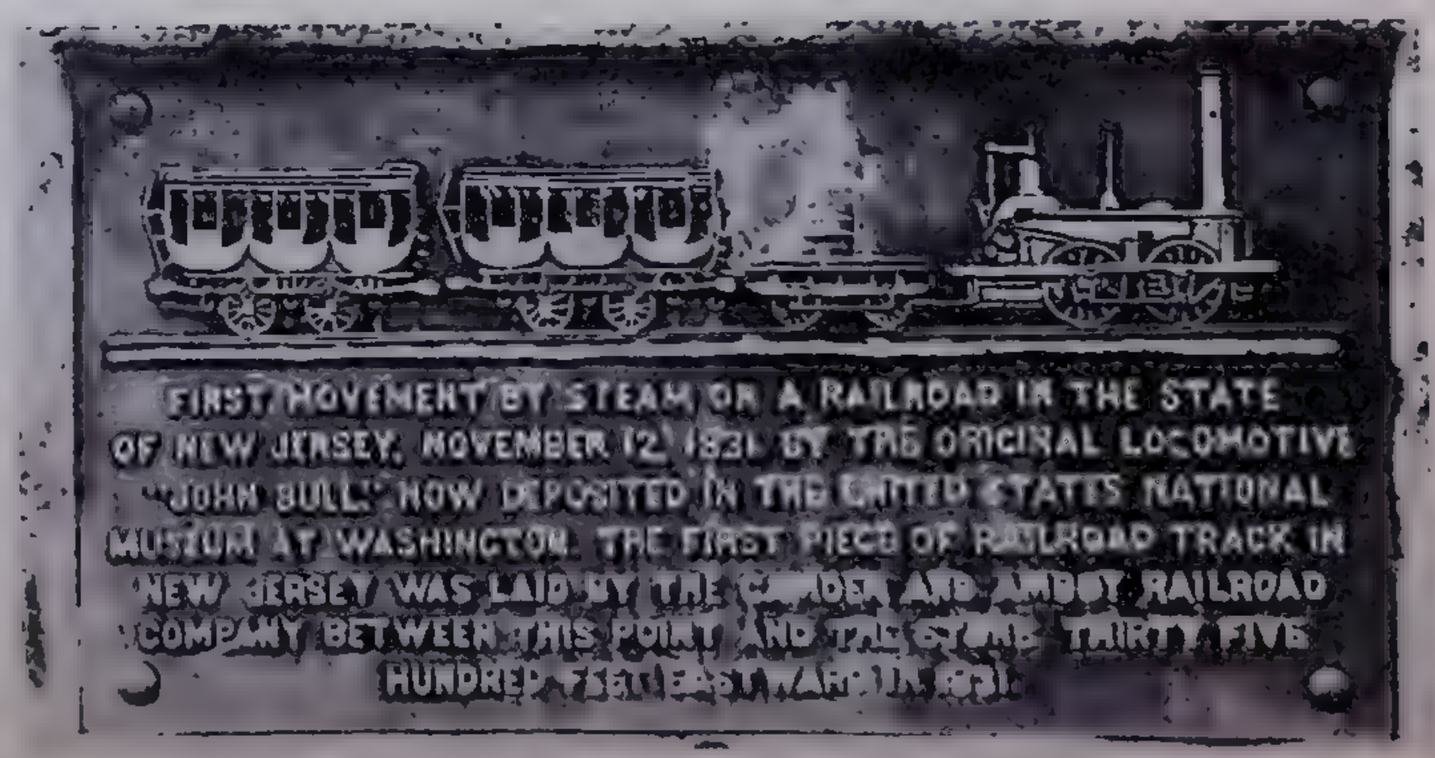
One of the early Camden & Amboy baggage cars, showing how individual compartments were mounted on wheels to facilitate handling at the end of the line.

The fact that the pilot enabled their "Bull" to nudge bold cows (pigs, people, dogs and wagons) out of the way soon became apparent and the cow-catcher was here to stay.

Passengers reached South Amboy in December, 1832. By mid-January, 1833, the first freight was operating over the line, with both passengers and freight drawn by teams of fast horses, operating in swiftly-moving relays across the heart of New Jersey.

The following September the "John Bull" was ready to haul its first pay load across state. Eastbound everything was fine, despite a light rain, but on the return trip the engine hit a wandering hog. The hog was separated from its head and the "John Bull" landed in a ditch. The only casualty was a

The Camden & Amboy Railroad monument erected in 1891 at Bordentown by the Pennsylvania Railroad to commemorate 60th anniversary of the "John Bull's" first ride. On November 12, 1831, as the tablet below points out, Jersey had its first steam movement. Around the monument's base are stone blocks from the original roadbed, supporting steel ring made from the earliest T-rail which forward-looking Robert L. Stevens ordered made in English mill.


FIRST MOVEMENT BY STEAM ON A RAILROAD IN THE STATE
OF NEW JERSEY, NOVEMBER 12, 1831 BY THE ORIGINAL LOCOMOTIVE
"JOHN BULL" NOW DEPOSITED IN THE UNITED STATES NATIONAL
MUSEUM AT WASHINGTON. THE FIRST PIECE OF RAILROAD TRACK IN
NEW JERSEY WAS LAID BY THE CAMDEN AND AMBOY RAILROAD
COMPANY BETWEEN THIS POINT AND THE STONE THIRTY FIVE
HUNDRED FEET EASTWARD

Dr. Richard P. McCormick, assistant history professor at Rutgers University and president of the New Jersey Historical Society, with two of the exhibits set up at Society by the Railroadians of America—Stevens T-rail and "strap" rail.

A later type of Camden & Amboy locomotive, built by Danforth, Cooke & Co. in Paterson. Considerably refined over its predecessor locomotives, this model had the flaring stack and gaudy decorations which marked 19th Century engines.

passenger who "summersetted" from his seat.

Before the "John Bull" made its first cross-state trip in 1833 the Camden and Amboy was building three more locomotives at Hoboken. One of these, planned by Robert Stevens and Isaac Dripps in collaboration, was put in operation in 1834. Their 30-ton giant, aptly named the "Monster," roared across the state on its big 48-inch drive-wheels for years.

Camden was reached in January, 1834. Now three round trips a day were provided, two by horsedrawn trains until more locomotives were acquired. The through fare from Philadelphia to New York was $2 for horses, $3 for steam. Steamboats provided the links on either end.

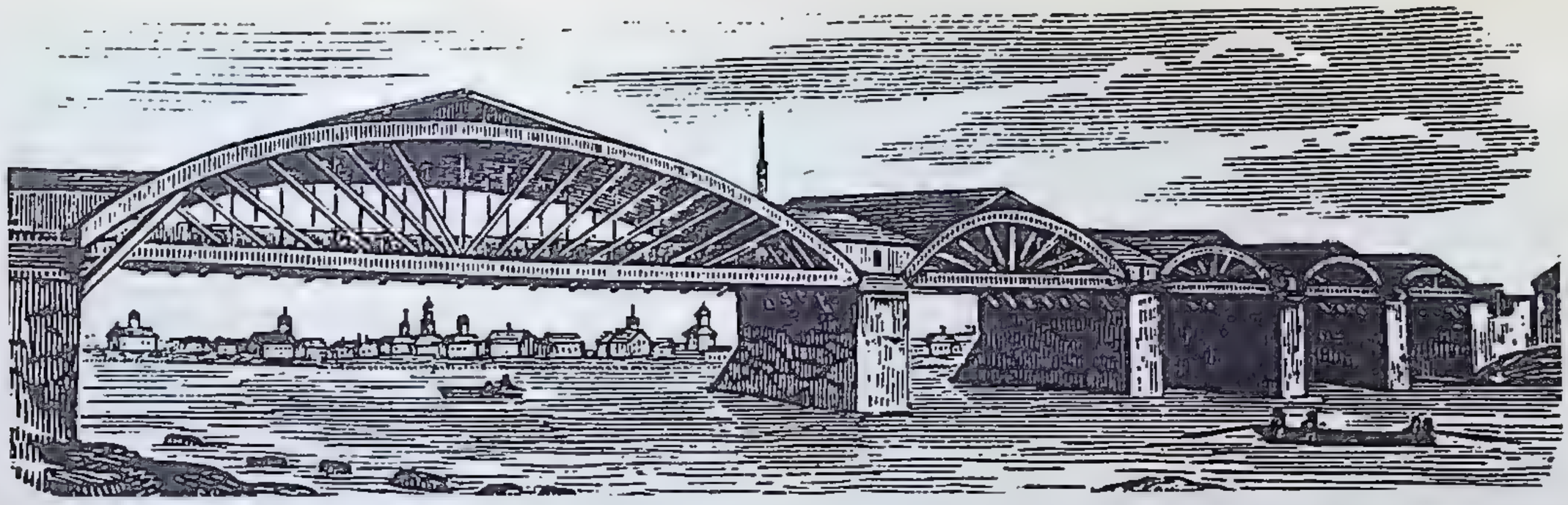
Speed was the order. Seven hours from Philadelphia to New York by locomotive, nine by horse. Some passengers, used to leisurely stage travel, said the ride was too fast, insisted on occasional stops. Baggage was put in locked compartments on rollers so that a quick transfer—less than five minutes—could be made from train to steamboat.

The public responded. In its first year the Camden and Amboy carried 110,000 people; five years later that was up to 165,000.

It was an indulgent public, however, because this was primitive railroading. The line was single-tracked all the way, with numerous turnouts provided. A post between turnouts was the deciding factor when trains met—whichever engine had passed the post had the right of way, the other had to back to a siding. When head-on wrecks brought a storm of protest a "schedule" of a sort was set up to force a train to wait on a siding, but engineers often grew tired of waiting and went on, usually to another wreck.

A serious Camden & Amboy accident in the Fall of 1833 threatened the lives of two illustrious men—John Quincy Adams and Cornelius Vanderbilt. Two persons were killed when a forward axle broke on one of the cars as the train sped along at 25 miles per hour. Adams escaped completely but Vanderbilt had his chest crushed. He survived, however, to make railroad history of his own at a later day.

By 1837 it became obvious that



Old sketch of the Delaware River bridge at Trenton where the C.&A. connected with the Philadelphia & Trenton.

the route through little Hightstown and Jamesburg was illogical. Places like New Brunswick, Princeton and Trenton demanded service. Within two years a new straight line had been laid across the state and a connection made with Bordentown. In 1840 the first train ran through from Jersey City to Philadelphia—by way of the New Jersey Railroad to New Brunswick, over the Camden and Amboy to Trenton and down to Philadelphia on the Philadelphia and Trenton. This is the route of the mighty Pennsylvania Railroad today.

The "John Bull," meanwhile, worked continuously until 1866. Then in 1892 it was taken out of the shops and refinished. In Middlesex County one of the two original coaches was found serving as a chicken coop. A duplicate was built and old "John Bull" hauled both coaches 930 miles across the country to the Columbian Exposition at Chicago—just to prove there was life in the old bull yet. Having proved it, the Pennsylvania Railroad's officials had the sturdy old locomotive put away for good, in the Smithsonian Institution in Washington, D. C.

Very early picture of Crampton locomotive used on the Camden & Amboy Railroad.

Newark around 1847, showing New Jersey Rail Road train after crossing Center Street Bridge over the Passaic.

Across the Meadows

Newark and Paterson Among First Municipalities to Seek Charters for Railroads as Outlets for Products

RAILROAD fever was spreading through New Jersey "like measles at a picnic," as one early promotor put it. The rash was breaking out all over, but nowhere had it come as close to epidemic proportion as in Paterson and Newark in 1830.

Up and down the Eastern seaboard promoters extolled their schemes of vast railroad networks. They would link two villages, say Hog Gulch and Hickoryville, add "and Atlantic" or "and Western" to the name and a railroad empire would be born, often stillborn. Most had to invent a reason for existence over and above linking Hog Gulch and Hickoryville.

Even in Newark the first thinking evolved around a grand scheme to cut right smack through to New Orleans. Sound planners knew, however, that it didn't make too much difference where a railroad went to the west—as long as the eastern terminus was as close to New York as possible. That's where the country's business was.

Newark and Paterson bustled toward industrial greatness in 1830. The Morris Canal seemed likely to help mightily by bringing anthracite from Pennsylvania and by moving manufactured goods to the New York markets.

Paterson pointed with pride to its 7,000 inhabitants and its great cotton factories, as well as its "salubrity of location" and the "healthfulness" of the 1,879 factory workers. Why in 1829, when a census was taken, "only 12 persons were found to be confined to their beds by sickness!"

Newark was boasting that it supplied markets throughout the United States with its manufactures, particularly in the shoe and allied leather fields. Newark's population was increasing so fast that all day long the air was "filled with the ring of carpenter's hammers" adding to the hundreds of "costly, elegant and commodious" houses in town. By gosh, it was big enough to be a city.

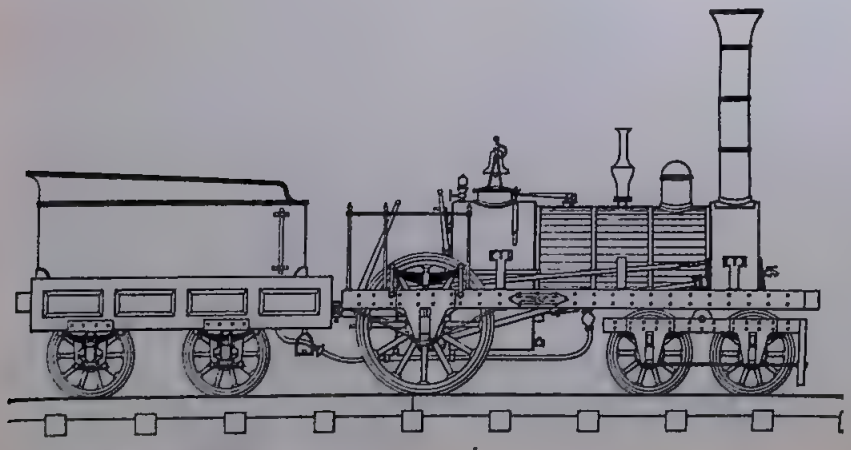
The inadequacies of the Morris Canal became more apparent when Winter locked in the canal boats. Newark's 65 vessels in the coasting trade failed in the face of bad weather. Businessmen had a most miserable stage ride across the Meadows to keep appointments in New York.

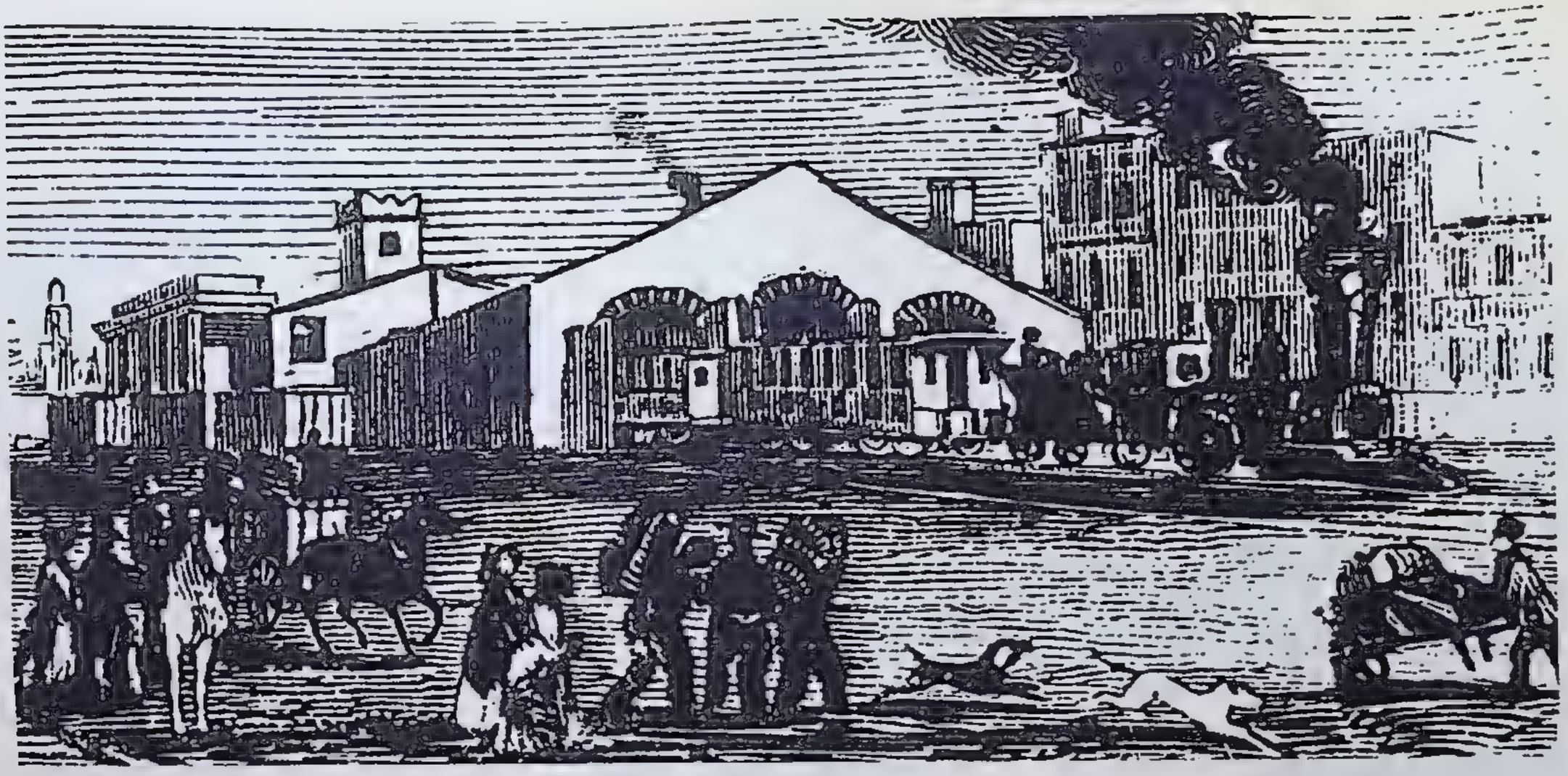
At the same time, there was public agitation in both Paterson and Newark "for a railroad—and it must go to Jersey City."

Paterson moved first, possibly because it was more dependent on the weather-dominated canal. It agitated for a charter as early as 1828, found itself frozen out by a powerful Morris Canal lobby. The town fought back, finally won the state's second railroad charter on January 21, 1831—the Paterson and Hudson River.

There was great joy in Paterson. Every one who could afford a ticket crowded up to VanBussam's Frank-

Paterson & Hudson River's "McNeill", named for one of the railroad's planners.





Jersey City terminal of the New Jersey R. R. and the Paterson & Hudson River, a busy place as early as 1840.

lin House to celebrate on February 3, 1831.

Toasts kept the crowd cheering through the night, until the "company retired at a late hour, much gratified with the enjoyments of the evening." Railroad President Philomen Dickerson started the toasting by raising his glass to "The Paterson and Hudson River Railroad—may it ever be kept bright by the products of the plow, the hammer and the shuttle."

Understandably the festivities were cut off some 30 toasts later. At that point a Mr. T. B. Crane arose and proposed: "The enemies of the railroad—may they be rode on a chestnut rail, sharp edge up."

Subscription books were opened on March 2 and the "anxiety to obtain the $250,000 in capital stock was almost without parallel." Within six hours the stock was oversubscribed five times. Money was plentiful—on with the railroad!

William Gibbs McNeill and George Washington Whistler were hired to plan the route. The partnership was doubly successful, incidentally, because Whistler married McNeill's sister, and their son, James Abbott McNeill Whistler, immortalized the marriage with his portrait of "Mother."

By June, 1832, the first section was opened between Paterson and Aquackanonk (Passaic) and three double-decker cars, carrying 30 passengers apiece, made the four-mile trip in 15 minutes behind "fleet and gentle horses." There was great joy, but no recorded official celebration because the railroad was deep in the more serious problems of pushing ahead over the Passaic River, over Berry's hill, across the Hackensack and on to the Hudson.

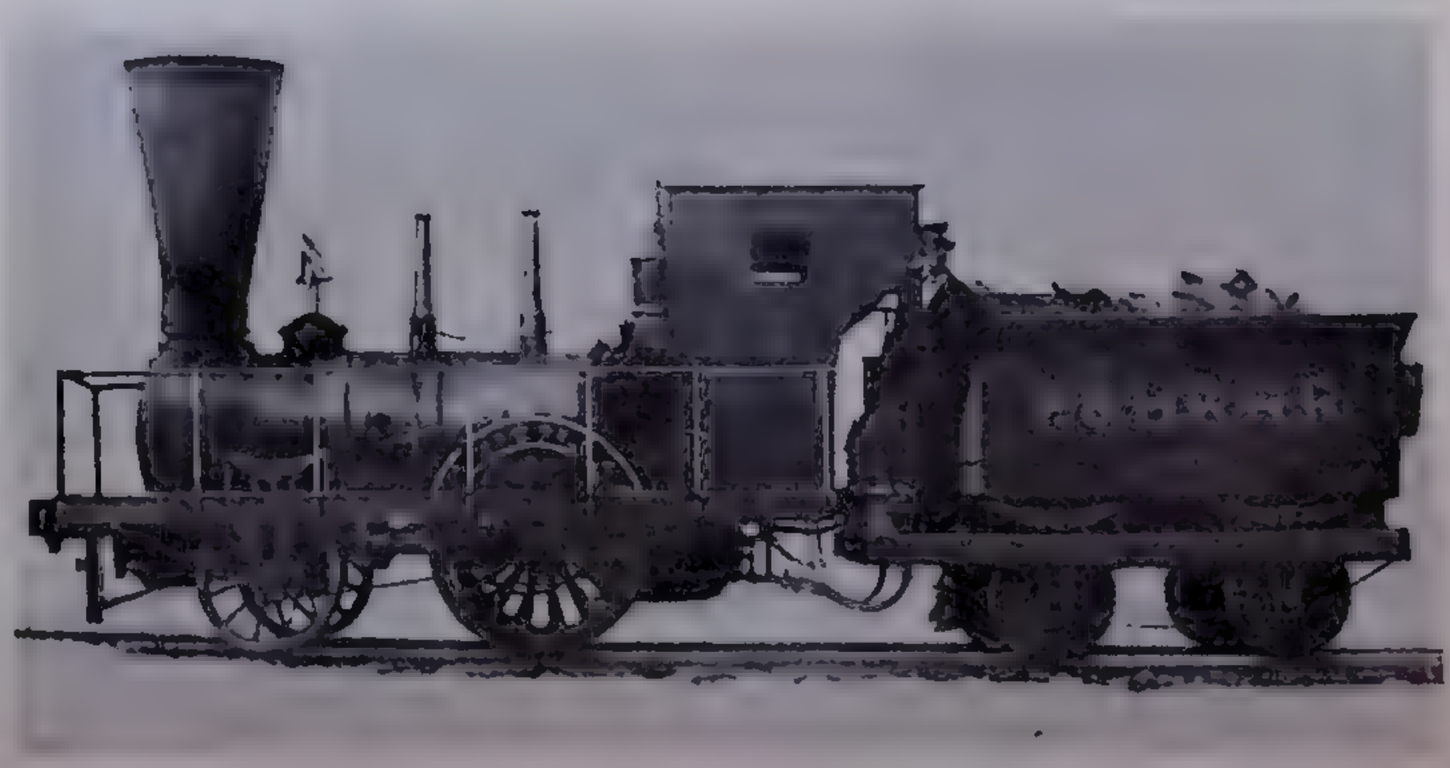
Vitally interested riders on that first trip were a group of commissioners of the New Jersey Rail Road Company, themselves contemplating the difficulties of building across the Meadows to Jersey City from Newark. They were a couple of years behind Paterson, but it wasn't their fault.

Early in 1830 a group of Newarkers had sought a charter for a railroad from Jersey City through Newark, to Trenton and on to a point below Camden—and maybe on to New Orleans.

The Camden and Amboy Rail Road fought the projected road and when it lured the Morris Canal into the fight the contemplated railroad was temporarily dead in the Legislature—by a narrow two-vote margin. Newark was bitter. It screamed "monopoly," assailed the "log rolling" a railroad bill admittedly needed to pass.

Yet log roll Newarkers did, by agreeing to run only to New Brunswick by way of Newark, Elizabethtown and Rahway. This would give the Camden and Am-

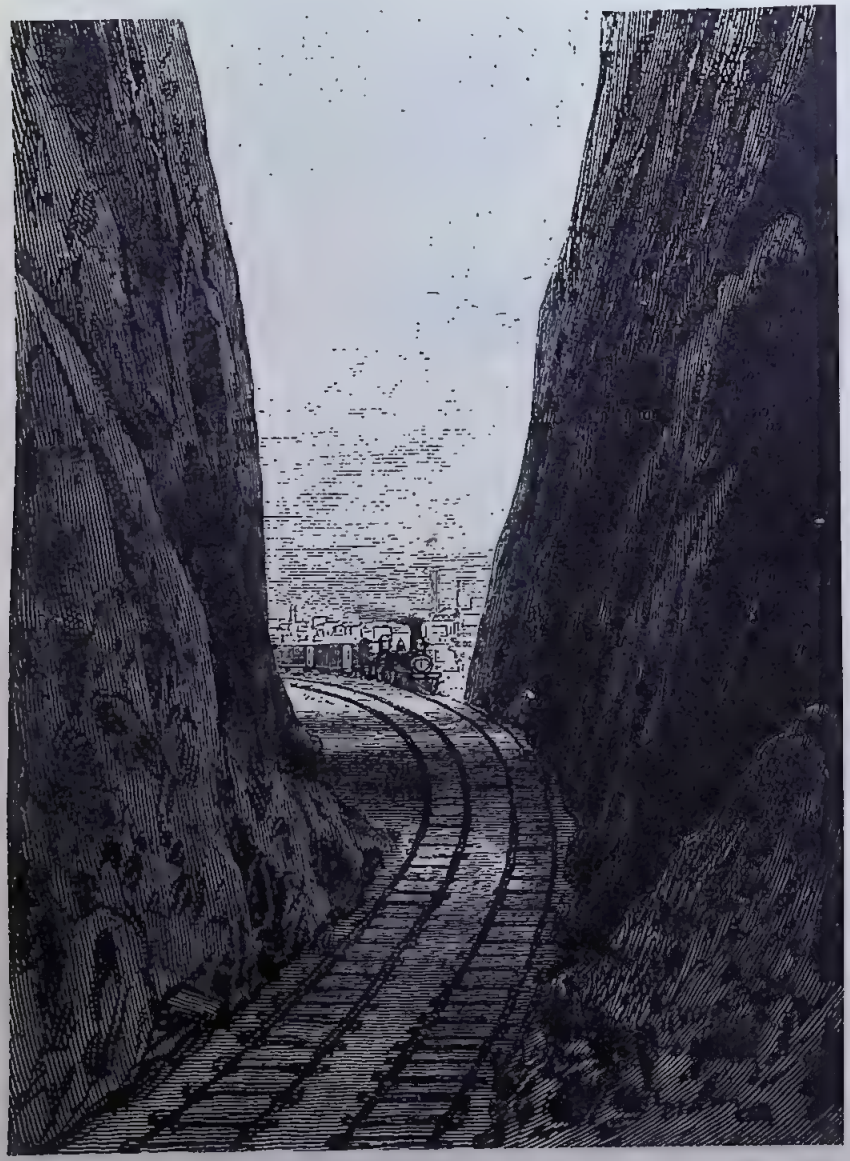
"The Whistler", named for George W. Whistler, another of P. & H.R.'s engineers.



boy an entrance to New York harbor and would in no way cut into the Camden and Amboy's cross-state business. So, devil take the hindmost or the Morris Canal, the New Jersey Rail Road and Transportation Co. was chartered March 7, 1832. That was New Jersey's third charter.

valiantly fought the fearful ravages of Asiatic cholera in Newark's poor neighborhoods in 1832, was named the railroad's first president at a meeting at the Eagle Tavern in Newark June 4, 1832. He held the position until his death 30 years later.

Railroads were at the time considered public property, by the way, and both the Paterson and Newark groups found written in their charters provisions that any one with "similar" carriages could use the rights-of-way on payment of a fee of 3 cents per mile per ton of freight or single passenger. Fortunately few "similar" carriages ever appeared on the rails, although it's stimulating to reflect on what might happen if the provision existed today. That was a minor matter, however, in 1832.



Before the railroads cooperated in digging this deep cut through Jersey City's Bergen Hill in 1838, passengers were taken over the hill in horse-drawn cars.

Stock books were opened May 1, closed May 3. Capital stock of $750,000 was said in the newspapers to be "enthusiastically oversubscribed," but the fact is that the promoters had to buy most of the stock themselves after public financial interest waned.

Gen. John S. Darcy, who had

The two railroads reaching out for Jersey City found themselves beset by three major physical problems:

1. The Passaic and Hackensack rivers, important river facilities requiring drawbridges.
2. The Meadows, which much of the time were covered by tidewater.
3. Bergen Hill, astride any route between Paterson or Newark and Jersey City, impossible for locomotive power of the day to surmount.

The Paterson and Hudson excited great interest in engineering and railroad circles with its two wide drawbridges over the Passaic and Hackensack, said to be the first railroad drawbridges ever made.

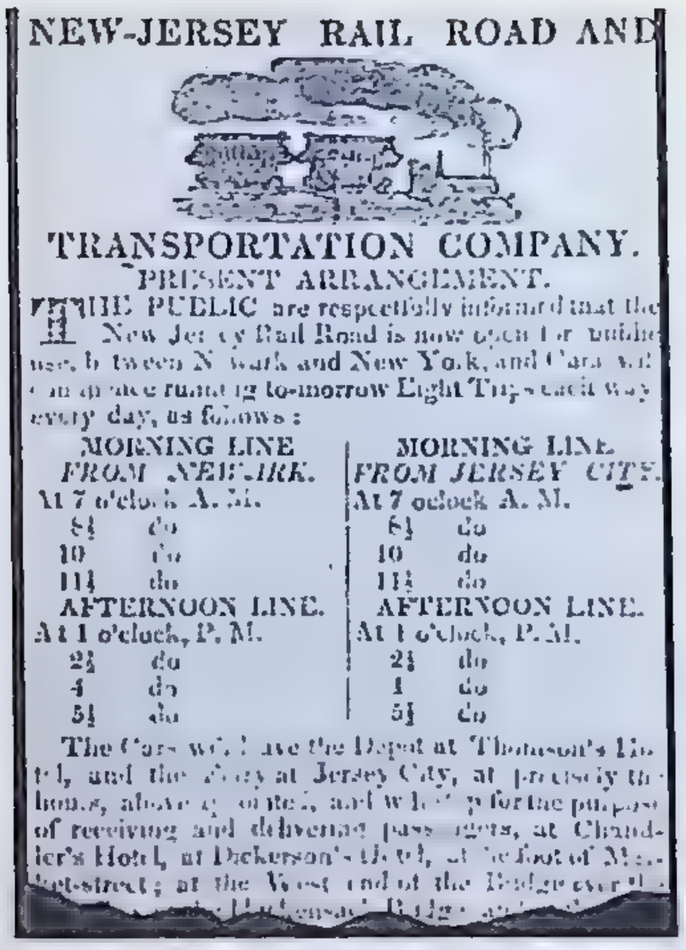
On the other hand, the New Jersey Rail Road found itself again enmeshed in monopoly. The Hackensack and Passaic Bridge Company owned exclusive bridge rights to the area; the railroad company had to buy out the company before it could lay its rails.

Then came the Meadows. "Nothing to it," said early engineers. "Sink piles into the marsh, build your railroad on top of them."

That was harsh underestimation of the shifting opposition of the Meadows, as both railroads were to find to their financial sorrow before they conquered the swamp. It took thousands of great cedars from the Meadows forests and countless tons of dirt to get a base on which tracks could be laid. Even at that it was not considered safe to run a locomotive across the Meadows until the fill had settled for a year.

Bergen Hill was perhaps the most difficult natural obstacle. Neither the Paterson and Hudson River or the New Jersey Rail Road figured on cutting through the hill alone. Thus, they agreed to do the job jointly, with the New Jersey group paying three-fifths of the cost. At that, the cut, about where Journal Square is today, was not finished until 1838.

The Paterson crowd reached Jersey City first, sending a horse-drawn excursion to the contemplated junction with the New Jersey Rail Road on December 11, 1833.



NEW-JERSEY RAIL ROAD AND

TRANSPORTATION COMPANY.

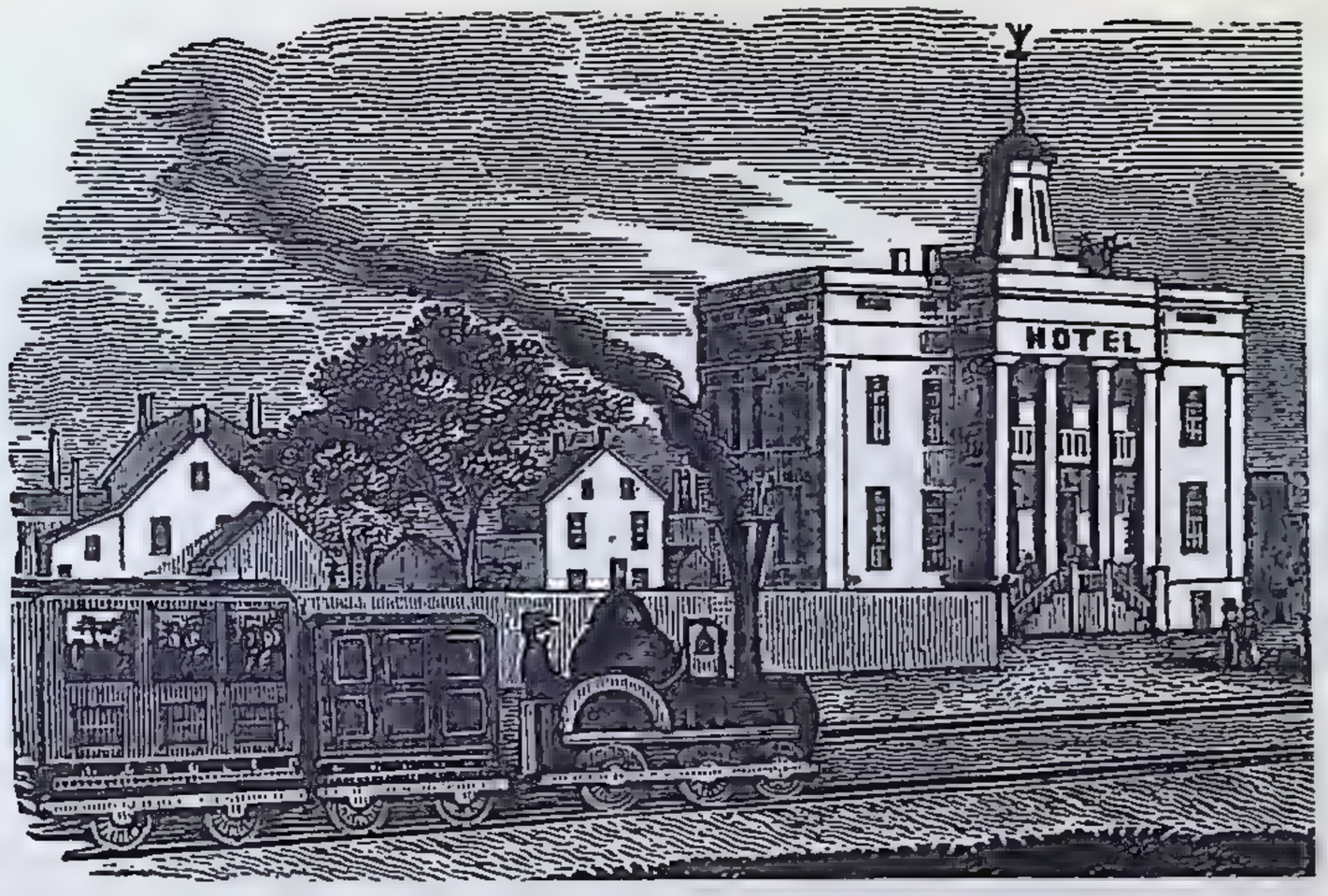
PRESENT ARRANGEMENT.

THE PUBLIC are respectfully informed that the New Jersey Rail Road is now open for public use, between Newark and New York, and Cars will run as above running to-morrow Eight Trips each way every day, as follows:

MORNING LINE *FROM NEWARK.*	MORNING LINE *FROM JERSEY CITY.*
At 7 o'clock A. M.	At 7 o'clock A. M.
8½ do	8½ do
10 do	10 do
11½ do	11½ do
AFTERNOON LINE.	AFTERNOON LINE.
At 1 o'clock, P. M.	At 1 o'clock, P. M.
2½ do	2½ do
4 do	4 do
5½ do	5½ do

The Cars will leave the Depot at Thomson's Hotel, and the Ferry at Jersey City, at precisely the hours, above specified, and will stop for the purpose of receiving and delivering passengers, at Chandler's Hotel, at Dickerson's Hotel, at the foot of Market-street; at the West end of the Bridge over the [illegible]

First schedule of the New Jersey R. R.



Old engraving shows New Jersey R. R. train steaming into Rahway around 1845.

Naturally there was a party (if there was a more celebrant-minded railroad than the Paterson and Hudson River, records fail to show it). Mr. VanBussam's food and the endless toasts sent 100 of Paterson's civic leaders on to Bergen Hill in high spirits.

Meanwhile the New Jersey backers built rapidly. On September 1, 1834, the passenger car "Washington"—a "splendid and beautiful job of workmanship containing three apartments besides seats on top"—made a round trip to Bergen Hill and back. Six weeks later tracks were completed over Bergen Hill and Paterson and Newark business men could ride all the way to the Hudson, but until the cut was completed all cars were drawn over the hill by horses.

Paterson received its first locomotive, the "McNeill," from England in April, 1835, and put it on the rails in June. The start of the "McNeill" was well-advertised, although the railroad was careful to point out that horse-drawn cars would be available for the "timid" twice daily. By January, 1836, the "timid" had vanished to the point where the horses were sold.

Eight horse-drawn lines (trips) were needed to handle the Newark-Jersey City traffic from the first.

The New Jersey Rail Road's Market Street Station in Newark, as it appeared in an 1855 magazine illustration.

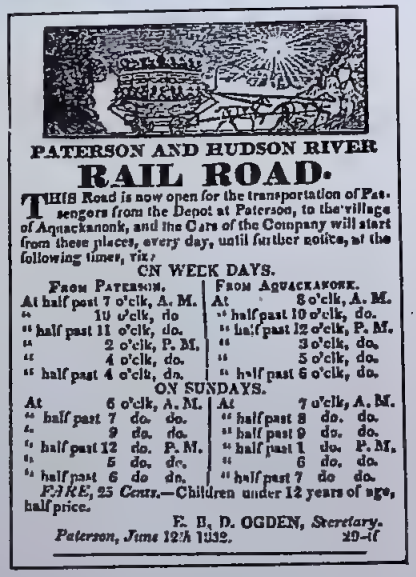
A bituminous coal-burning locomotive built in 1869 for the New Jersey Rail Road & Transportation Company.

The relatively comfortable ride, the low fare (37½ cents) and the speed (a half hour) appealed quickly. The first week 2,026 persons used the railroad and in the second week that rose to 2,548. By 1840 nearly 5,000 made the trip weekly.

The first steam locomotive, the "Newark," ran over the New Jersey Rail Road tracks on December 2, 1835. There was no thought for the timid (or at least the advertisements didn't say so) and within six years bold Newarkers thought nothing of racing across the Meadows at 35 miles per hour.

Paterson to New York trips apparently were somewhat more leisurely. Coaches often jumped the tracks, but that prompted only slight concern since they were light enough to be put back on quickly. All railroad passengers of the 1830s, incidentally, felt it a duty (or possibly a trust) to put derailed coaches back on the tracks. The trip usually took an hour, provided the train was not stopped in the middle of the Meadows while passengers and crew hunted snapping turtles.

Paterson and Newark found they could in no way be considered the end of the line. Both railroads were destined for far greater things—the Paterson and Hudson River as a vital Jersey City connection for the Erie Railroad; the New Jersey Rail Road as the way to New York



PATERSON AND HUDSON RIVER

RAIL ROAD.

THIS Road is now open for the transportation of Passengers from the Depot at Paterson, to the village of Aquackanonk, and the Cars of the Company will start from these places, every day, until further notice, at the following times, viz:

ON WEEK DAYS.

From Paterson.	From Aquackanonk.
At half past 7 o'clk, A. M.	At 8 o'clk, A. M.
" 10 o'clk, do	" half past 10 o'clk, do.
" half past 11 o'clk, do.	" half past 12 o'clk, P. M.
" 2 o'clk, P. M.	" 3 o'clk, do.
" 4 o'clk, do.	" 5 o'clk, do.
" half past 4 o'clk, do.	" half past 6 o'clk, do.

ON SUNDAYS.

At 6 o'clk, A. M.	At 7 o'clk, A. M.
" half past 7 do. do.	" half past 8 do. do.
" 9 do. do.	" half past 9 do. do.
" half past 12 do. P. M.	" half past 1 do. P. M.
" 5 do. do.	" 6 do. do.
" half past 6 do do.	" half past 7 do do.

FARE, 25 *Cents*.—Children under 12 years of age, half price.

E. B. D. OGDEN, *Secretary*.

Paterson, June 12th 1832. 29-tf

Paterson & Hudson River 1832 schedule.

for the Camden and Amboy and later for the Morris and Essex and the Jersey Central.

Agitation for a railroad continued in Elizabethtown and beyond to New Brunswick. By December, 1835, cars made the trip to Elizabethtown and "appropriate ceremonies" marked their coming.

Even more elaborate was the enthusiasm in Rahway when the railroad came through in January, 1836. Rahway was a progressive village, proud of the fact that its academy teachers had a "fixed salary" and wondering whether "Athens" might not be a more cultural name for the surroundings. It was ready and eager for a railroad and salvos from cannon greeted the first train. It was enough to remind one of a Paterson railroad celebration!

New Brunswick's 6,000 inhabitants had their fervent wish for a railroad come true in 1838. On January 1, 1839, a link was made with the Camden and Amboy. On to Philadelphia, Baltimore, Washington and the West—maybe even without changing cars!

Paterson promoters didn't get their charter to build north to Suffern until 1841, and then had to turn back an attempt to have the Erie run through the eastern section of Morris County. Construction started in 1847, the junction with the Erie made in 1851.

Thus the network spread. Thus New Jersey learned that well-run railroads (and the Paterson and Hudson River and the New Jersey Rail Road were exceedingly well run) could profit both community and promoter. Towns grew along the way, industries expanded. New York businessmen even began thinking of settling out in the beautiful state west of the Hudson. The commuter was about to be born.

Lithograph of 1844 shows a horse-drawn train of the Morris & Essex Railroad passing down Broad Street toward its Center Street connection with the N. J. Rail Road. Upper Common (now Washington Park) is in background.

Garden State Products Are Hauled to Market

Making Railroads Pay Was Problem of Pioneer Builders Who Sought Answer in Freight Routes

SOME still refused to give up the notion that the railroad was a snorting demon hatched by Satan, but by 1835 that was already an old-fashioned idea. It wasn't too hard to admit that railroads which connected great industrial centers with shipping points had chances of brilliant financial success.

Camden and Amboy, Paterson and Jersey City, Newark and Jersey City—no question of the need for such connecting rail arteries. But what were those fanatic farmers out in Somerville and Morristown thinking about with their insistent pushing for railroads?

Consider the plain south of the Watchung Mountains, for example, where a company had been chartered as early as February 9, 1831, to build a railroad from Elizabethtown to Somerville. Verily an "abundant and delightful country" where fertile farms prospered, but what about industry—on which railroads grew fat? A few master hatters and five tailoring establishments in Plainfield and two copper mines near Somerville? Not enough, friend, to make a railroad pay.

Morristown businessmen were optimistic, but that could be chalked up to the pride they held in their splendid old square and their beautiful new courthouse. True enough the Morris County mountains were full of iron, but wouldn't the Morris Canal take care of the iron masters? Did the Morristown men think that the struggling village of Orange or the surrounding rich farmlands would support a railroad?

Worse, as far as a Newark to Morristown railroad was concerned, no sooner did a body leave Newark than the First and Second Mountains got in the way. At a time when men weren't even sure a railroad would work on level ground those Morris County promoters were talking about running tracks over The Short Hills!

Yet in the mountains of Essex and Morris and on the Plains of Union and Somerset the visionaries persevered. They won their rights to build from the state—the Elizabethtown and Somerville Rail Road being chartered in 1831; the Morris and Essex four years later.

The two lines were to have remarkably parallel careers. First, they were built only after severe financial strain for their founding fathers. They collapsed financially, only to pick themselves up and build on to Phillipsburg. Later they fought for anthracite traffic, with victory of varying sorts for both. Finally, and perhaps above all, they were destined to become two of New Jersey's great commuting railroads—the Jersey Central and the Lackawanna.

The Elizabethtown & Somerville was founded early, but five-and-a-half years elapsed before four horses pulled the first "Town Car" along rails from the Elizabethport ferry docks to Broad street, Elizabeth, on August 13, 1836.

Meanwhile Morris and Essex backers had caught up, then gone rapidly ahead of the valley company, partially because several Newark businessmen caught the enthusiasm of the Morris men and agreed to help. The charter of January 29, 1835, provided for $300,000 in capital stock.

Madison was a tiny village before the advent of the railroad, as this 1845 woodcut shows. The locomotive was imaginative interpretation of Seth Boyden's "Orange" on part of artist, who also put top-hat on engineer.

Seth Boyden, builder of the "Orange".

Choosing the Morris & Essex right-of-way was a venture beyond mere engineering surveys. M. & E. founders were willing to comply in any way with provisions of their charter, which said they were to connect with the New Jersey Rail Road "at or between Newark and Elizabethtown."

From Millville (now Millburn) to Morristown the way was fairly certain. Eastward there were two possibilities—by way of Orange or via what is now Irvington. You make up our minds, the M. & E. said to the people along the way.

A polite query went out to leaders along the alternate routes. It said in effect: "Do you really want a railroad? If so, how much stock will you buy?" A resounding "yea" came back to the first question; less ready were the answers to query number two.

John Taylor Johnston of the Central.

This 1845 woodcut shows Bound Brook. The Delaware & Raritan Canal, linking New Brunswick and Trenton, is in foreground, and an Elizabethtown & Somerville train is on far bank. In background are the Watchung Mountains.

Orange wanted the railroad badly enough to get up money for some stock. Newarkers had a battle between the North End and the South Side for Morris & Essex entry into the city. It wasn't too difficult for the railroad builders to make a choice:

The North Enders subscribed to $100,000 in stock and offered a free right-of-way. The South Siders offered nothing—and got nothing.

Westward the course of the M. & E. spread, taking full advantage of donations.

The grade of 140 feet to the mile up to what is now Roseville was steep, but the right-of-way was free. It didn't make much sense to climb 80 feet to the mile from Millville up to The Summit of The Short Hills. Nothing up there but woods, but since Mr. Bonnell had been good enough to give it away if the railroad came by . . .

Up to The Summit went the Morris & Essex.

Some Madison and Morristown folk were a bit recalcitrant in the matter of both stock purchases and land donations. Some even raised their asking prices for land! A Morristown paper warned against "trying to keep what you have got and get all you can." Nevertheless an all-rail route finally twisted and climbed its way from stockholder to stockholder and land donor to land donor, all the way to Morristown by January 1, 1838.

Even before the first horse-drawn cars reached Orange on November 19, 1836, it was obvious that the mountains were going to make steam locomotion difficult—perhaps impossible. Morris & Essex men knew there was one man who could overcome the excesses of right-of-way if any one could.

They called on modest Seth Boyden, Newark's "uncommercial inventor."

Boyden had never even seen a steam locomotive, but when the railroad men left his machine shop they had a promise: "I'll build you a locomotive powerful enough to overcome the grades."

What Boyden promised Boyden accomplished. By July, 1837, his little six-ton "Orange" locomotive was successfully tried with Boyden himself at the throttle. A month later two cars loaded with 200 passengers were pulled up the hills to Orange and back, to the unbounded praise of editors of the day.

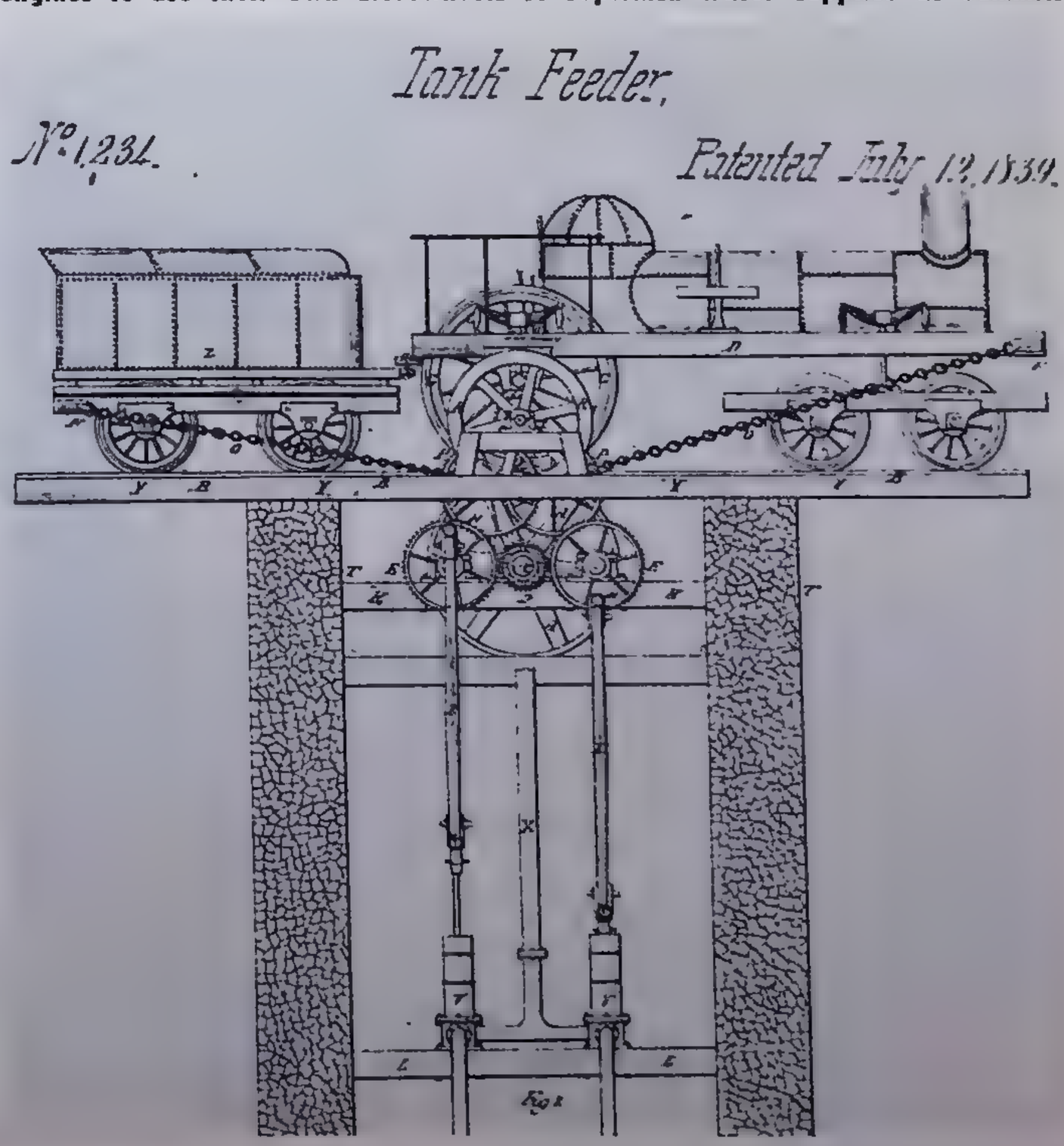
Elizabethtown in 1840, prosperous though it was, nevertheless presented this quiet picture before the Elizabethtown & Somerville Railroad reached westward.

The triumphant trial was marred just before its close, however, by the M. & E.'s first fatal accident. As the "Orange" pushed the two cars down Broad street they became derailed and two men trying to jump were killed.

The accident, a Newark paper commented, "caused much unfavorable comment."

Seth Boyden did much of the M. & E. repair work for years. He was patently not out to get rich from the railroad. His bills show

A diagram of the ingenious device patented by Stephen Vail in 1839 to permit engines to use their own drivewheels to replenish water supplies at Summit.



Here is Jersey Central's first train, consisting of a locomotive, a wood car and one coach. The locomotive is the "Eagle," built by Baldwin at Philadelphia in 1838. It pulled the first train to Plainfield January 1, 1839.

such items as "work on an engine after running over a horse, $2.50" (a later bill charged $3 for repairs after a cow was struck). One of his bills was apologetic, carried suggestions for improving the roadbed and cutting down the cost of engine repairs!

Starting in January, 1838, the Morris & Essex could offer three-hour service between Morristown and New York, with an early morning and an early evening train for any businessman hardy enough to work in New York, live in Morristown and spend 1,800 hours annually on trains.

This is what the patient passenger of 1840 faced on an M. & E. ride (and, allowing for differences in terrain, what all railroad riders of the day endured):

A bell rang in the Morristown station for a full hour before a train left (an improvement added after some Newarkers missed the 3¼ o'clock train one day when they put faith in the town clock, which had been stopped for three months at 3 o'clock). The "traveling agent" took up the fare, the "hand to attend the brakes" released the stops, the "woodpasser" tossed wood into the engine and the "driver" pulled the throttle.

Eastward down the crude roadbed the "Orange" sped. The "roadbed" in many places was merely two long logs laid lengthwise with timbers fastened crosswise. Atop these, strips of bar iron served as tracks. Standard equipment on the tender were spikes and a sledge hammer to fasten down lengths of rail which had worked loose, but sometimes a loose rail snaked up through the floor to endanger the lives of passengers.

An early Morristown commuter, one Vincent B. King, was said to be so afraid of these "snake heads"

Thick smoke pouring from its numerous mills emphasized Dover's industrial might in this woodcut made at about the time the Morris & Essex Railroad was extended over the hills from Morristown to tap the rich iron region.

that he rode back and forth to New York every day without sitting down! His stand, while firm, was not interminable—the strap iron rail was all replaced with good heavy rail by 1844.

Stops had to be made to take on wood; often rail fences succumbed to the insatiable appetite of the wood-burning "Orange." Sometimes pauses were made to put out roadside fires caused by sparks spraying from the locomotive, and always there were stops at Millville pond and Summit to take on water. At Summit the engine used its own drivewheels to pump water, through an ingenious arrangement devised by Stephen Vail.

How patient was the passenger! In Newark his cars were taken off the M. & E. tracks, hauled downtown to Center street behind a horse and then hooked to a New Jersey Rail Road engine for the rest of the trip to Jersey City. That persisted until 1854, when the New Jersey Rail Road built a bridge across the Passaic River to connect the railroads in North Newark.

Morris & Essex freight service started in 1838, with the railroad agreeing to haul everything but "powder, vitriol and aqua fortis."

It was casual railroading, at best. The conductor stuck the waybill for freight in his cap and then trusted to his memory to drop the freight at the right places. He didn't need much of a memory at that; a good day's haul was a couple of boxes of small goods, a few barrels of flour and assorted little packages.

The struggle to build and operate the pioneer route through the Jersey mountains had put the Morris

These tunnels leading through the solid embankment of the Jersey Central's High Bridge right-of-way are reminders of bridge which once spanned the valley.

& Essex in poor financial straits. One year it even voted to discontinue salaries and pay its men on a day to day basis. But economically poor though it was, at least the M. & E. was giving service and thinking about building on to Dover and maybe even to the Delaware.

Down on the plain beneath the Watchungs things weren't going half as well with the Elizabethtown & Somerville.

It was to be 11 years between chartering the railroad and building it all the way to Somerville. The roadbed was nothing to excite envy; rails were the same thin, dangerous bar iron as that on the M. & E.

Somehow, though, the interest of the citizens along the way never waned. On March 21, 1838, a sizeable group gathered at Jack Thorn's "Long Room" in Plainfield at "early candlelight" to discuss what they could do to help. Westfield, Yellow Tavern (Bound Brook) and Somerville residents rallied around. On January 1, 1839 the word came:

"The locomotive 'Eagle' will haul its first train up the valley from Elizabethtown to Plainfield today." It was a slow trip.

On one of its first runs the "Eagle" engineer was challenged by a horse lover in Elizabethtown to a race as far as Westfield. A pas-

Jersey Central Railroad built this great bridge over the South Branch of the Raritan River in 1852 and the town which sprang up about it took the name "High Bridge." The span was later filled in to accommodate heavy trains.

Great was the rejoicing in 1837 when this first Morris & Essex train climbed the steep grade up the hill to Summit, then sped down the valley to Chatham, proving that the grade of 80 feet to a mile had been conquered.

senger on the train wagered $5 and the race was on. As the "Eagle" gave a sudden jerk and the wheels of the passenger car started to creak and groan behind the laboring engine the horseman cracked his whip over the trotting team.

He collected the $5—had to wait 10 minutes for the "Eagle" to come lurching into town.

Service stretched to Yellow Tavern in 1840 and then, with a dying gasp, the Elizabethtown & Somerville rolled into Somerville on January 1, 1842. Lemonade and cake were served at the village inn to celebrate (admittedly a moderate fete, but strictly in keeping with the wretched company finances).

The combination of the Panic of 1837 and costs of building had flattened the E. & S. completely. Income wasn't enough to pay operating expenses. In 1846 the railroad properties were sold at auction to the contractors who had built the road.

Soon, however, things looked up for the railroad on the plains; quickly it gained pre-eminence over its counterpart in the mountains. First, the Somerville & Easton Rail Road was chartered in 1847 to build on to Phillipsburg. Then, and most important, the dynamic and resourceful 28-year-old John Taylor Johnston became president in 1848.

Johnston (who said he hated "dishonesty in any form" and didn't care for any Johnston "who spelled his name without a 't' ") immediately took hold. The line from Elizabethtown to Somerville was merged with the Somerville to Easton road and the name changed to The Central Rail Road Company of New Jersey in 1849.

The new president carried out two main objectives: To move quickly to the Delaware to pick up coal and other raw materials, and to develop the land along the railroad. In addition, he strove for operating efficiency. He was the first railroad president in America to put his trainmen in uniform. He set up prizes for men who maintained their grounds well. He put a car on all trains for "unescorted women." Johnston was a promoter in every sense of the word.

Jersey Central's biggest early celebration was July 2, 1852, when Phillipsburg finally was reached. A writer of the day captured the mood:

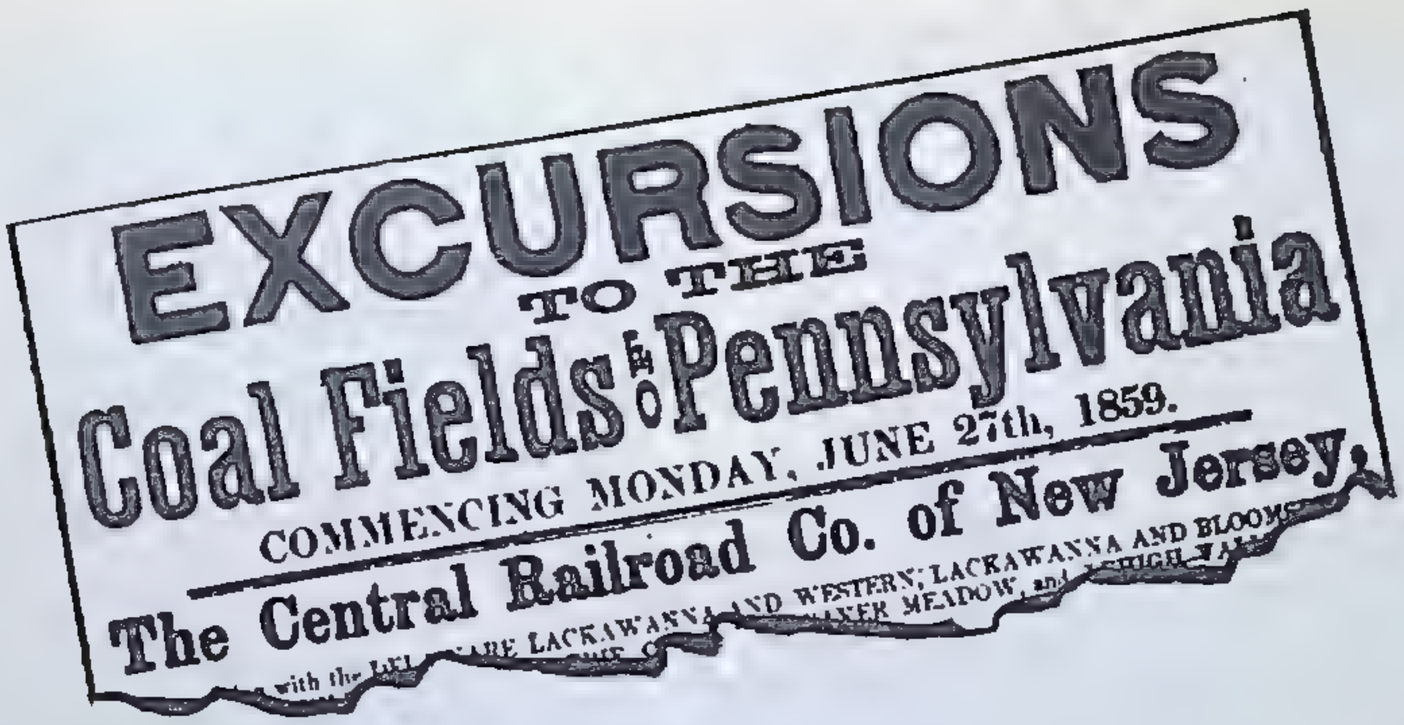
"Eight splendid cars, drawn by the gigantic 'Pennsylvania' and accompanied by Dodsworth's Band, sped through the glorious landscapes of Hunterdon and Warren to the wonder of thousands of delighted inhabitants who thronged to stations and greeted the party with the firing of guns and the waving of handkerchiefs and banners.

"From this day that undeveloped iron country began to yield up its wealth . . . the country sang with the ring of the tilt hammer, and log cabins were exchanged for beautiful dwellings."

Meanwhile, up in the mountains, the Morris & Essex was stirring again. It rallied from its financial troubles and in 1848 pulled into Dover to tap the rich iron regions and to connect with the Morris Canal. At a tumultuous reception speakers lauded the "ponderous rails set upon a foundation as substantial as the iron mountains amongst which they are laid."

Legislative approval was granted to the Morris & Essex in 1851 to extend to the Delaware. Hacketts-town was reached in 1854 but lack of funds and the Civil War slowed construction down the valley to Phillipsburg.

Phillipsburg saw the M. & E. completion spike driven in 1865, ending a 30-year struggle across North Jersey's rugged terrain. The Morris & Essex builders drew a breath and took a closer look at the little Jersey Central which had fought to the Delaware 13 years before and already was growing sleek on a diet of hard coal. Now both were at the very edge of the coal fields; the battle for anthracite was fully joined.


EXCURSIONS
TO THE
Coal Fields of Pennsylvania
COMMENCING MONDAY, JUNE 27th, 1859.
The Central Railroad Co. of New Jersey,
LACKAWANNA AND WESTERN; LACKAWANNA AND BLOOMS

THE COAL RUSH

Early Jersey Railroads, Struggling for Financial Foothold, discovered Bonanza in 'Black Diamonds' From Pennsylvania.

PIONEER railroad builders found themselves smack up against the rugged mountains, the rocky valleys and the swirling rivers of West Jersey as they stretched their tracks to the west 100 years ago. Something promising great fortune was needed to entice them to pit their flimsy equipment and budgets against those powerful forces of nature.

By 1845 they had that something —Pennsylvania anthracite coal; truly black diamonds!

There was no question of demand. Men who sat throwing hickory logs into hot stoves in Newark in the 1830's speculated on how much longer the First Mountain forests could supply the furnaces. Morris County iron masters faced disaster as their wood supply reached the vanishing point.

The Morris Canal? It was slow and for four or five months every year ice closed it up tightly. Even in the balmy Summer sun it wasn't fast—five slow days from Easton to Newark.

It had to be the railroads—and soon.

The anthracite story began with the building of short stretches of track—both in the Pennsylvania coal fields eastward to the Delaware and in New Jersey westward from tidewater. That perhaps is the basic reason for the bitterness and the vindictiveness that was to come later—no railroad was originally projected in either direction to go all the way.

By 1880 the many small railroads had been welded into four big units, all of them in existence today—the Lehigh Valley, the Lackawanna, the Jersey Central and the New York, Susquehanna & Western.

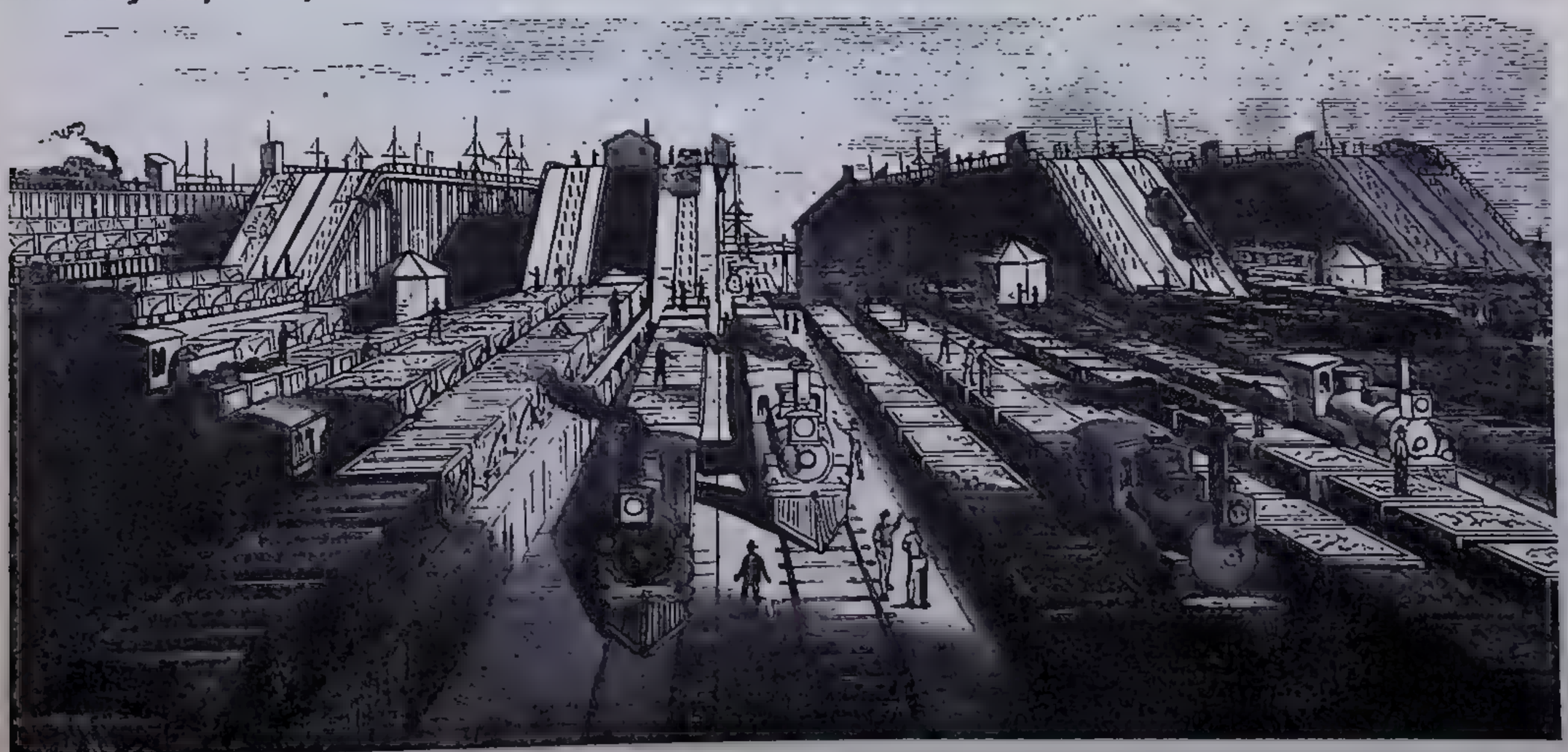
But, to go back to the beginning . . .

Resourceful John Taylor Johnston, president of the Jersey Central, reached the Delaware River first. The driving of the last spike in the little village of Phillipsburg in 1852 opened the way to coal riches. Jersey Central's quick roll to the edge of anthracite gave it a lead it didn't lose for 15 years.

Fortunately for Johnston two equally-dynamic figures in the Pennsylvania coal fields—John I. Blair and Asa Packer—saw in Jersey Central the answer to their own dreams of getting to tidewater.

Blair, born on a farm near Delaware, made his first dollar at the

Extensive gravity coal piers of the Delaware, Lackawanna & Western Railroad at Hoboken as they appeared in 1881.



Easton in 1875, with Lehigh Valley bridge over the Delaware. Jersey Central tracks are on the lower right.

age of 10 by selling muskrat skins. He liked the heady feeling of money so much that soon after his 11th birthday he told his mother he was quitting school.

"I'm going to be rich, mother," he said, simply.

Blair owned a general store in Gravel Hill (now Blairstown) when he was 18, and operated a chain of five stores nine years later. Even bigger things were ahead. Over in Oxford the Scranton brothers were making the rich iron mines pay. Blair joined the Scrantons and followed them to the Pennsylvania anthracite fields in 1846.

Just before his 50th birthday John I. Blair helped found the Delaware, Lackawanna & Western in Pennsylvania to connect the Delaware River and the Lackawanna coal fields surrounding what is now Scranton.

Blair looked back to Jersey again: He saw in the Jersey Central an obvious way to get Lackawanna coal from the Delaware Water Gap to tidewater.

Morris and Essex leaders, meanwhile, were planning by 1850 to push their railroad north from Hackettstown to the Gap and a junction with the D., L. & W. The M. & E. would have been perfectly happy—nay, desperately overjoyed—to carry every last ounce of Lackawanna anthracite to the Hudson River.

John I. Blair had other plans.

He set up his Warren Railroad in a deal with the D. L. & W. and the Jersey Central. The total capitalization of $450,000 was to be split three ways. The D. L. & W. was to get a perpetual lease of the Warren and the Central was to give D. L. & W. coal a perpetual right-

"Bird's Eye" view of Mauch Chunk, Pa., showing a Lehigh Valley train on the opposite side of the Lehigh River.

of-way to Elizabethport—and Warren stockholders were to get 7 per cent on their money.

The M. & E. was to get nothing.

Of course the Morris & Essex sought an injunction to keep the Warren from building over almost the very route it had chosen for itself through Warren County. Blair successfully fought the injunction and started to build.

The injunction proved easier to surmount than the rough Warren County mountain country. A 3,500-foot tunnel had to be blasted through Scott's Mountain near Oxford. At Vass Gap, near Manunka Chunk, a lesser tunnel had to be smashed through a rocky hill. It was a railroad undertaking calculated to make engineers of the 1850's watch with awe.

Eight years went by before the tunneling and the blasting ended. A tremendously-high trestle bridge had to be built above the Musconetcong River at Changewater, a long stone viaduct had to be constructed to bridge the Pequest River. No wonder it took four contractors and a succession of engineers before the Warren Railroad was finished.

While the blasting and digging were going on beneath the mountain a temporary track was laid

John I. Blair, Railroad Builder

over the top. Coal cars started running in May, 1856, from near Scranton down over the D. L. & W. to the Delaware River, then over the Warren to Hampton Junction and on to Elizabethport via the Central.

Meanwhile, Asa Packer was building his Lehigh Valley Railroad to Easton from another section of the Pennsylvania hard coal region.

Packer left his Connecticut home at 17 to become a carpenter's apprentice in Pennsylvania. He was a bright boy; he quickly realized that his future was in hard coal. By the time he was 35 he was a wealthy man and leader of a group planning to connect Mauch Chunk, Pa., with Easton by a railroad.

The railroad, destined to become the Lehigh Valley, was chartered in 1846 as the Delaware, Lehigh, Schuylkill and Susquehanna Railroad (they were missing no rivers). Public enthusiasm was lacking, stock sales were poor.

Asa Packer set out in 1852 to complete the railroad himself. He laid a single track line from Mauch Chunk to Easton and later built a two-level bridge across the Delaware River to connect the Lehigh Valley with the Jersey Central and the Belvidere-Delaware railroads in Phillipsburg.

These were golden days for the Jersey Central. In October, 1855, the Lehigh Valley—or Packer Road—was complete from the Mauch Chunk coal region to Phillipsburg.

Jersey Central had a tight hold on the antracite traffic. It leased rolling stock to the Lehigh Valley and laid down a third rail from Hampton Junction to Elizabethport so that the extra wide coal cars of the Lackawanna Railroad could go all the way to Elizabethport without change.

Lehigh Valley's Nineteenth Century coal yard was a busy place as engines pushed coal cars to end of trestle.

One of the engineering feats on John I. Blair's Warren Railroad was this long bridge over valley at Changewater.

Most coal headed for tidewater went over the Central.

In its first year of full operation, 1856, the Lehigh Valley shipped 418,235 tons of anthracite. The Lackawanna sent as many as 700 or 800 coal-laden cars to the east via the Central.

The co-operation of the Delaware, Lackawanna & Western and the Jersey Central seemed ideal for both. The M. & E. intruded somewhat into the happy family in 1867 when it made a physical link with the Warren Railroad at Washington, N. J., but the thousands of tons of coal rolling into Hampton Junction every day made life good for Jersey Central.

That made the blow in 1868 doubly hard to bear.

The D. L. & W. had long desired to control its direct outlet to New York harbor. It had one of three choices—the M. & E., the Jersey Central or the obsolescent Morris Canal.

Jersey Central was prosperous—an ironical thing, in a way, since it was D. L. & W. coal which helped make it sleek. The D. L. & W. was disinclined to dicker for control of the Central. The more the D. L. & W. looked the more it liked the M. & E. The M. & E. was planning a freight route into Hoboken by way of Boonton to supply a direct route free of forbidding grades to the Hudson River. The financially embarrassed M. & E. was also ready for the Lackawanna's wooing.

Highly-polished and richly-decorated "Dorothy", Lehigh Valley inspection car.

The turning point in the fight for anthracite had arrived. As soon as the Lackawanna gained its own line to tidewater, both Jersey Central and the Lehigh Valley had to protect themselves.

The D. L. & W.-Jersey Central "perpetual" relationship ended violently in the mid 70's. Central solved its problem partially by leasing the Lehigh & Susquehanna Railroad in Pennsylvania in 1871. It still had its link with the Lehigh Valley, but that ended when Lehigh Valley leased the Morris Canal in 1871.

The Lehigh Valley was merely

sparring for time. The canal had proved a costly transportation medium. However, the canal owners controlled 60 acres of extremely valuable waterfront in Jersey City, which went to Lehigh Valley with the lease. Lehigh Valley set out to reach the canal waterfront property by rail.

In 1872 it chartered the Easton & Amboy Railroad, to run south of the Jersey Central, via Flemington Junction to Perth Amboy.

Lehigh Valley engineers unhesitatingly started a tunnel through the Musconetcong mountain in 1872 and finished it in 1875 at a cost of millions of dollars. The rest of the railroad was graded and double tracked before the tunneling was through.

Hundreds of workers, many of them immigrants, were taken to the North Hunterdon area to dig the tunnel. In September, 1872, trouble started at Pattenburg in arguments among the laborers over racial differences. Suddenly the arguments flared into a riot. Before the battle ended five workers were dead.

Lehigh Valley's first 125-car coal train headed from Phillipsburg through the tunnel and out over the fields of Hunterdon to Perth Amboy on May 28, 1875. Within a year its line was double tracked

Crewmen pose on caboose of N.Y.S.&W. train on lay-over in Pocono Mountains.

all the way from Easton to Perth Amboy.

Packer lived long enough to see his fondest Lehigh Valley dreams realized before he died in 1879 at 74. Before his death much of his great coal fortune had gone to found Lehigh University in 1865.

Jersey Central's troubles with the D. L. & W. and its loss of the Lehigh business coming hand in hand with the ruinous financial panic of 1873 put a sudden halt to its prosperity. Johnston, ever-faithful to his railroad, tried to save it. He held a public auction of his fabulous art collection and raised $300,000. It wasn't enough.

Jersey Central's New York piers, in days when the line advertised itself as the "Allentown Route to the West".

Jersey Central went into receivership in 1877.

By 1880 the Jersey Central, the Lackawanna (which, of course, included the Morris & Essex) and the Lehigh Valley had reached tidewater with various degrees of prosperity They all eyed a newcomer making its way to the coal fields in slow degrees across the state well to the north.

Five railroad charters were combined in 1870 into the New Jersey Midland, father of the N. Y., S. & W. Work started immediately from Hawthorne to Bloomingdale and in less than three years track was laid all the way from Jersey City to Franklin, then north to the New York state border to connect with the New York Midland, to make a through route from Jersey City to Middletown.

Local business was reasonably good. Passenger business was fair. Still, it was apparent that no increase in prosperity could be expected until the road was built to the coal fields.

A sweeping reorganization in 1882 brought the name New York, Susquehanna & Western and the completion of the railroad to hard coal outlets. By consolidating several more small companies and building some connecting links the N. Y., S. & W. reached the Delaware River. It made an agreement in 1882 to build into Stroudsburg to pick up Lackawanna coal thus giving the latter another outlet to New York markets. The Susquehanna River was reached in 1893, when a road was built to Wilkes-Barre. The "Western" was never realized, except by indirect connection with other railroads.

Incidentally, even though the N. Y., S. & W. didn't fulfill its "Western" promise, one of the coal carriers, the Jersey Central, did so as early as 1862, when it advertised its "Allentown Route" to Chicago—the "shortest link to the West." Trains sped to Easton on the Central, to Allentown on the Lehigh Valley and to Pittsburgh via the Reading and the Pennsylvania. Connections were available to Chicago.

Railroad folk shook their heads in admiration. Only 16 hours and 5 minutes to Pittsburgh! From the shores of the Hudson to the shores of Lake Michigan in 36 hours!

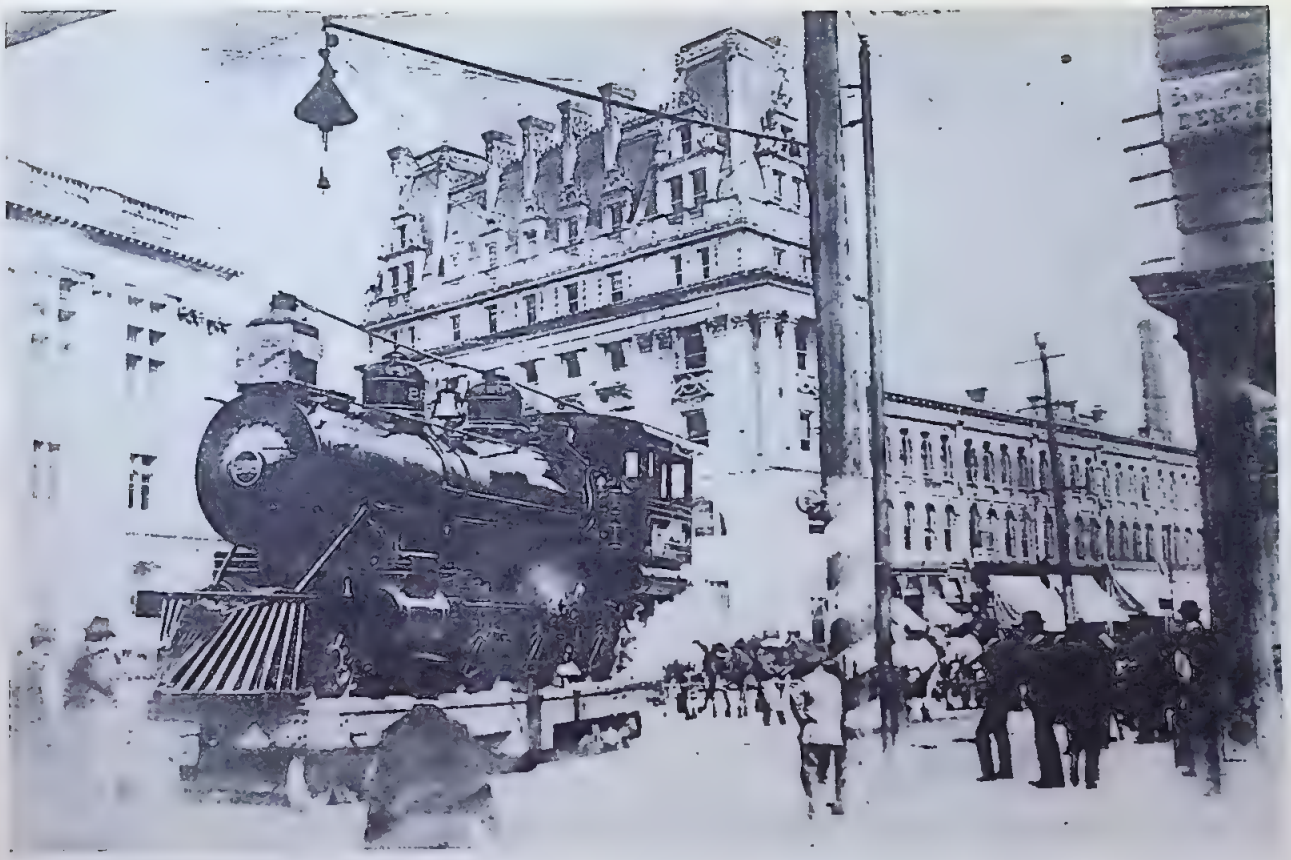
Like the coal business, however, the Jersey Central also eventually lost its prestige as a through passenger carrier. The Pennsylvania took over the route through Pittsburgh. The Lehigh Valley and the Lackawanna finished the through-passenger wreckage of the Central by gradually assuming more passenger traffic to Chicago.

Now, what about John I. Blair, the boy who quit school at 11 to get rich?

After his New Jersey railroad ventures he turned to bigger things in the railroad world. With Oakes Ames and others he helped get the charter for the Union Pacific and personally built the first 100 miles west from Omaha. Before he died he had become president of 16 different railroads and is said to have owned more railroad property than any other man in the world.

Blair eventually owned land throughout the country equal to half the area of New Jersey and traveled 40,000 miles a year. Yet, whenever he could, he returned to Blairstown, where he had endowed Blair Academy in 1848.

When he died in 1899 at the age of 97 the ex-Belvidere farm boy left a fortune estimated at well over $60,000,000.



Resting on a horse-drawn flatcar, a Rogers locomotive is hauled along Paterson's Market street en route to the Erie freight yard. This picture was taken on September 21, 1900, with Paterson's City Hall in the background.

Paterson's 'Iron Horses'

Ingenuity of Master Mechanics Made Paterson the Rival of Philadelphia as Locomotive Capital of the World

YOUNG TOM ROGERS wasn't the first to believe that getting in and out of bed early would bring health, wealth and wisdom, but the boys at the Goodwin House in Paterson swore that he was out to prove the old proverb.

Years later, after Rogers had become one of the world's greatest locomotive builders and had helped make Paterson equal Philadelphia as the locomotive centers of the universe, they looked back on the days at the Goodwin House. Some regretted that they had let young Tom honor the proverb by himself.

"Didn't make any difference how good the party was down to Goodwin's," the old-timers recalled. "Every night Tom got up at 10 o'clock, and headed for home."

Fifty years later they could hear his words come winging back: "Have to work on the morrow."

It may have been Roger's devotion to rest or it may have been his uncanny skill with tools. At any rate, soon after he came to Paterson in 1812 it was obvious that this 20-year-old Connecticut carpenter was the best hand with tools in town. He made wonderful power looms and he turned out any kind of a machine on demand. No wonder he had $40,000 cash on hand in 1831, when he retired at the age of 39.

Historians don't say whether the fact that the Paterson & Hudson River Railroad was building from Paterson to Jersey City had anything to do with his "retirement."

Thomas Rogers, the founder of Rogers, Ketchum & Grosvenor, Paterson's first locomotive builders. Their first engine, the "Sandusky," rolled across North Jersey in 1837, and its wailing whistle was called the first in this nation. Soon the railroad world came to understand the name "Rogers" was synonymous with quality and strength.

The locomotive "New Jersey", an early Rogers, Ketchum & Grosvenor engine. This lithograph shows the colorful finish which made Rogers products ever-popular.

It does record that he didn't stay inactive long. Along came Morris Ketchum and Joseph Grosvenor, decribed as "men of capital but no mechanical ability," and with Rogers they formed "Rogers, Ketchum & Grosvenor" in 1832.

R. K. & G. started railroad work immediately, first by making the iron work for the Paterson & Hudson River's bridges over the Passaic and Hackensack rivers and later by turning out 100 sets of wheels and axles for a South Carolina railroad.

Whatever thoughts Rogers might have entertained about building a locomotive for the new railroad weren't shared by the P. & H. R. management. They ordered their first locomotive, the "McNeill," from England. Rogers & Co. were hired to put together the unassembled British engine.

The "McNeill" was assembled with loving attentiveness; Rogers studied every part carefully before he bolted it into place. When the "McNeill" was ready so was Rogers.

The first Rogers, Ketchum and Grosvenor engine was set before an admiring public on October 3, 1837—a day strikingly eventful in widely diversified ways. It had taken Rogers and associates 16 months to build their engine, the "Sandusky."

Scarcely had the "Sandusky" headed eastward on the Paterson & Hudson River tracks when it emitted a piercing wail, serving notice that the nation's first locomotive whistle had been born in Jersey. Every railroad whistle screaming down through the ages dates its beginning back to that clear October day.

At Bergen Hill the locomotive was switched to the New Jersey Rail Road tracks and the little Rogers engine rolled gaily through Newark and Rahway to New Brunswick. Everywhere the shrill blast of its whistle startled humans and animals alike, and so taken was the engineer with his new whistle that there scarcely was steam enough to run the engine back to Paterson.

Looking on and listening was J. H. James, president of the Mad River & Lake Erie Railroad in Ohio.

"We want that engine," he told Rogers. He got it, and Paterson was in the locomotive business for good.

The "Sandusky's" whistle made as big a hit in the Ohio woods as it had in New Jersey. Enthusiastic Ohio legislators pushed through a bill at their next session requiring all railroads in the state of Ohio to have the same gauge width between rails as the "Sandusky"—which happened to be four feet, 10 inches.

A rare picture of the "General", taken shortly after it was abandoned by Union soldiers after exciting chase across Tennessee. Built by Rogers in 1856, the once-proud locomotive suffered very severe damage to its smokestack and boiler.

Smith & Jackson of Paterson built this locomotive, the "William Crooks," in 1861 for the St. Paul and Pacific Railroad. The famous old engine was completely overhauled and its past glory restored for the Chicago Railroad Fair.

A few months later Rogers and partners delivered their second engine, the "Arreseoh No. 2" to the New Jersey Railroad. Three more were built in 1838 and their widespread distribution shows how the Rogers fame was spreading. The Toledo and Adrian Railway bought Roger's third locomotive, the "Clinton" in April, 1838; the South Carolina bought the "Experiment" three months later, and when the "Batavia" went to the Tonawanda Railroad in October Rogers, Ketchum and Grosvenor had a real celebration—five locomotives built in a little more than a year!

Before 1838 was finished three more engines were finished and by 1850 the Rogers plant was building more than 100 locomotives a year.

Throughout the railroad world the talk was of Rogers and his locomotives. He tried everything—setting the wheels ahead and setting them back, experimenting with driving wheel diameters to increase speed or power. He tried hollow spokes; his counterbalanced wheels won him undying technical fame.

Yet, powerful and durable though the Rogers's locomotives were, it was their style—their pure class—that was foremost.

"It's a Rogers!"

That was synonymous with unparalleled to small boys of the 1850's. It meant all of the inherent glamour a locomotive imparts to a small boy, but it also meant that the world's most readily recognizable builder had sent another beautiful job rolling across the land.

Railroad men told one another: "Wherever you go you can tell a Rogers at a glance." Railroad historians looking back observed: "Perhaps no concern has done so much to popularize the locomotive."

Rogers built locomotives that were far and away the most elaborate of the time. Blue, red and yellow paint was liberally applied to wheels, cabs and boilers to offset the gleaming black. Shining brass bells, whistles and other parts reflected the glory of the sun. Possibly wipers who used untold millions of yards of cloth to keep the engines sparkling might not have liked the color and the brass, but the rail fans of the day sure loved them!

Rogers explained his philosophy of railroad building one day when some one suggested that perhaps his locomotives were a bit wobbly. Said Rogers:

"I build the locomotive to fit the road. They say my locomotives are wobbly. That's the way I want them to be. I put the body loosely on the wheels so the body can move around a little on the curves."

Naturally Rogers attracted the best in mechanics, and naturally enough, some of those with enough initiative and imagination dreamed of building their own locomotives. Two of them, William Swinburne and Samuel Smith, broke away in 1845 to set up Swinburne, Smith & Co. By 1848 they had built their plant and had 150 men at work.

Swinburne & Smith became the New Jersey Locomotive Co. in 1852 and the Grant Locomotive Works in 1865. By 1867 the plant had covered five acres. One of Grant's most famous early engines was the

The "Texas," which was used by the Confederates to chase Union raiders aboard the "General" in 1862, is shown before it was enshrined in the "Battle of Atlanta" cyclorama in Atlanta, Georgia. It was built by Danforth, Cooke & Co.

Among the locomotives built by the New Jersey Locomotive Co. before the Civil War was this one manufactured for the Union Railroad (now part of the Erie).

Long after Thomas Rogers died in 1856 the Paterson company which bore his name turned out handsome engines like this "4—4—0" type for the N.Y.W.S.&B. road.

"William Crooks," a wood-burner built in 1861 for the Great Northern Railroad. Affectionately known as "The Grandpa Crooks," the locomotive was the first engine west of the Mississippi River. It served for 78 years and recently was exhibited in all its glistening magnificence at the Chicago Railroad Fair.

However, it was the elaborate "America" which brought most fame to Grant. Built in 1867, the "America" was beautifully finished with silver mountings and native woods, a "poem in iron and steel and silver" which won the Grand Prix at the Paris Exposition in 1867. Forever after Grant engines carried on their sides a brass replica of the medal.

Swinburne, who was credited in some circles with being the real genius behind the "Sandusky," left the New Jersey Locomotive Co. to set up his own plant in 1851. He turned out 104 locomotives, mostly for Western railroads, before the Panic of 1857 and a slick-talking Western lawyer put him out of business. The Panic was bad enough; but when the lawyer absconded with $90,000 of Swinburne's money the six-year-old locomotive plant was finished.

Hay fields surrounding the first buildings erected by Rogers, Ketchum & Grosvenor in 1830's show that Paterson was far from industrially developed then.

The last Paterson locomotive builder to get underway (and incidentally, the last to survive) was Danforth, Cooke & Co. Charles Danforth entered the locomotive field in 1852; his obvious choice as a partner was clever John Cooke, superintendent of Rogers, Ketchum & Grosvenor.

Cooke was making the princely salary of $1,800 a year, but money was no object with Danforth. He offered Cooke a partnership. Rogers matched the offer and Cooke debated at length. Finally he went in to tell Tom Rogers that he was leaving.

"Oh, very well, very well," said Rogers with irritation, "Can't be helped, I suppose."

The new company's fame spread as rapidly as had Roger's, and by the time Tom Rogers died in 1856 Danforth, Cooke & Co. was a formidable rival—albeit a friendly one. They could afford to be friendly; rapidly expanding railroad empires made business for all.

Paterson's only possible rival as the locomotive capital of the world was Philadelphia, where Matthias W. Baldwin (an ex-jeweler who was born in Elizabethport, for the record) and William Norris had both started before any of the Paterson builders.

As the Civil War broke Paterson's three locomotive plants (Rogers, Danforth & Cooke and Grant) took the leadership by producing $1,565,000 worth of locomotives in 1860, a shade ahead of Philadelphia. The following year Baldwin and Rogers each produced their 1,000th engine. Paterson and Philadelphia were making 75 per cent of all engines built in the country.

During the Civil War Rogers turned out 10 to 12 locomotives every month and the three Paterson plants combined to hit the unheard-of peak of a locomotive every working day. In 1864 the government ordered 19 locomotives from Rogers. That was believed at least a 10 month's job, but Rogers finished it in three months.

It was generally agreed that by

1880 Rogers was unexcelled in the world—with Grant and Danforth only a step behind—although the Panic of 1873 had threatened to wreck the industry. Rogers dropped from 1,648 employees and 190 locomotives in 1873 to 50 employees and 14 engines in 1877, but three years later the company was stronger than ever, making 240 locomotives in 1881. It made its 3,000th Rogers engine in 1883.

The vicinity of the farwestern end of Market street in Paterson in 1880 was a "deafening clangor of steel smiting steel." Grant, Danforth and Rogers were within an area of 10 blocks. Grant built 111 engines in 1881 and wound up the year with 1,550 built from the first one in 1845. Danforth, Cooke built more than 100 locomotives in 1881.

Those were the rosiest days of Paterson's loccomotive supremacy. At the end of 1881 Paterson could boast it had built 5,871 locomotives. Its three railroad plants covered 645,000 square feet of space. Its locomotives were known throughout the civilized world.

Four years later Grant suddenly moved to Chicago and by 1890 Philadelphia had irretrievably taken the lead away from Paterson. Danforth, Cooke was absorbed by American Locomotive Co. in 1902 and Rogers closed its doors in 1904.

Rogers built 6,200 locomotives before it folded for good, including some of the greatest ever made. Always the company worked under the terrific handicap of being far away from a main railroad track. Its heavy engines had to be hauled over special tracks through Market street to the Erie Railroad freight yard a mile away. At first horses —as many as 40 at one time— drew the locomotives on flat cars. Later dummy engines were used.

Danforth & Cooke, which had built 2,600 engines up to 1901, entered a highly prosperous new phase in 1885 when it pioneered manufacture of the Elliott rotary snow plow, soon used on most of the nation's railroads. After the plant was absorbed by American it continued to build locomotives in Paterson, but by 1926 its main output was snow plows and weird little engines for foreign railroads.

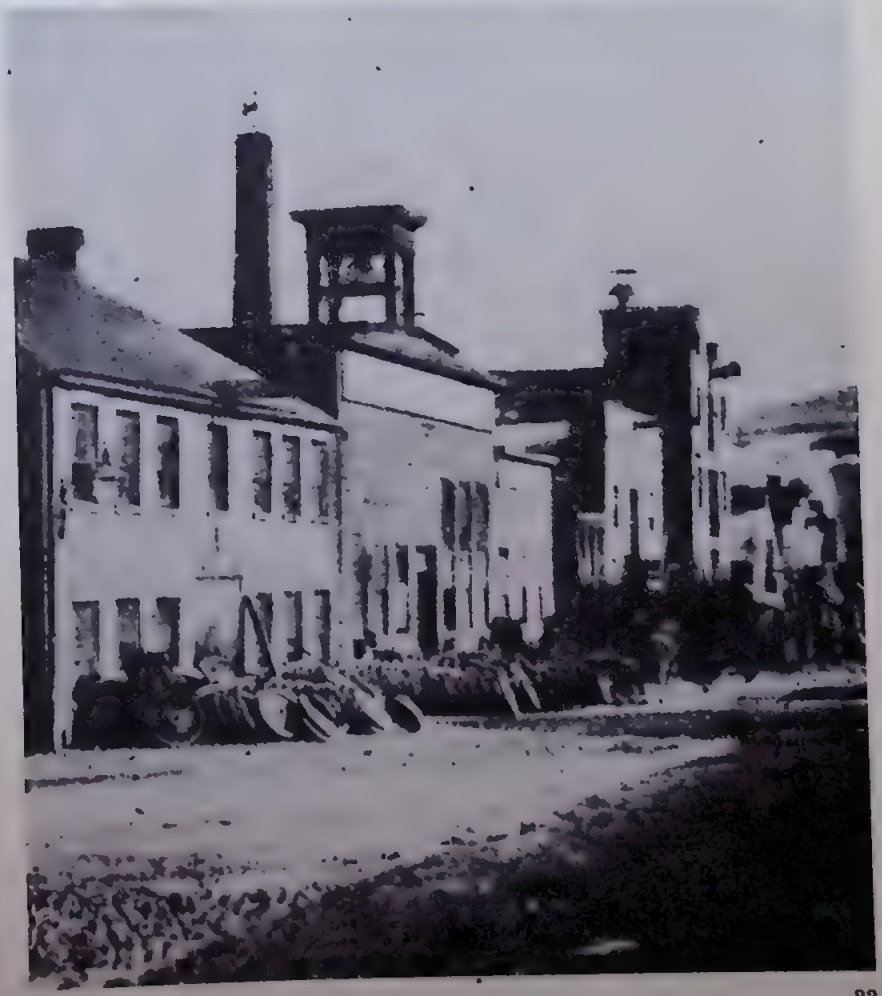
Not that manufacture of foreign engines wasn't in the best Paterson traditions. Rogers won undying international fame in 1859 when it sent two of its locomotives to Chile to compete against two of the best locomotives produced by the tremendous British firm of R. & N. Hawthorne.

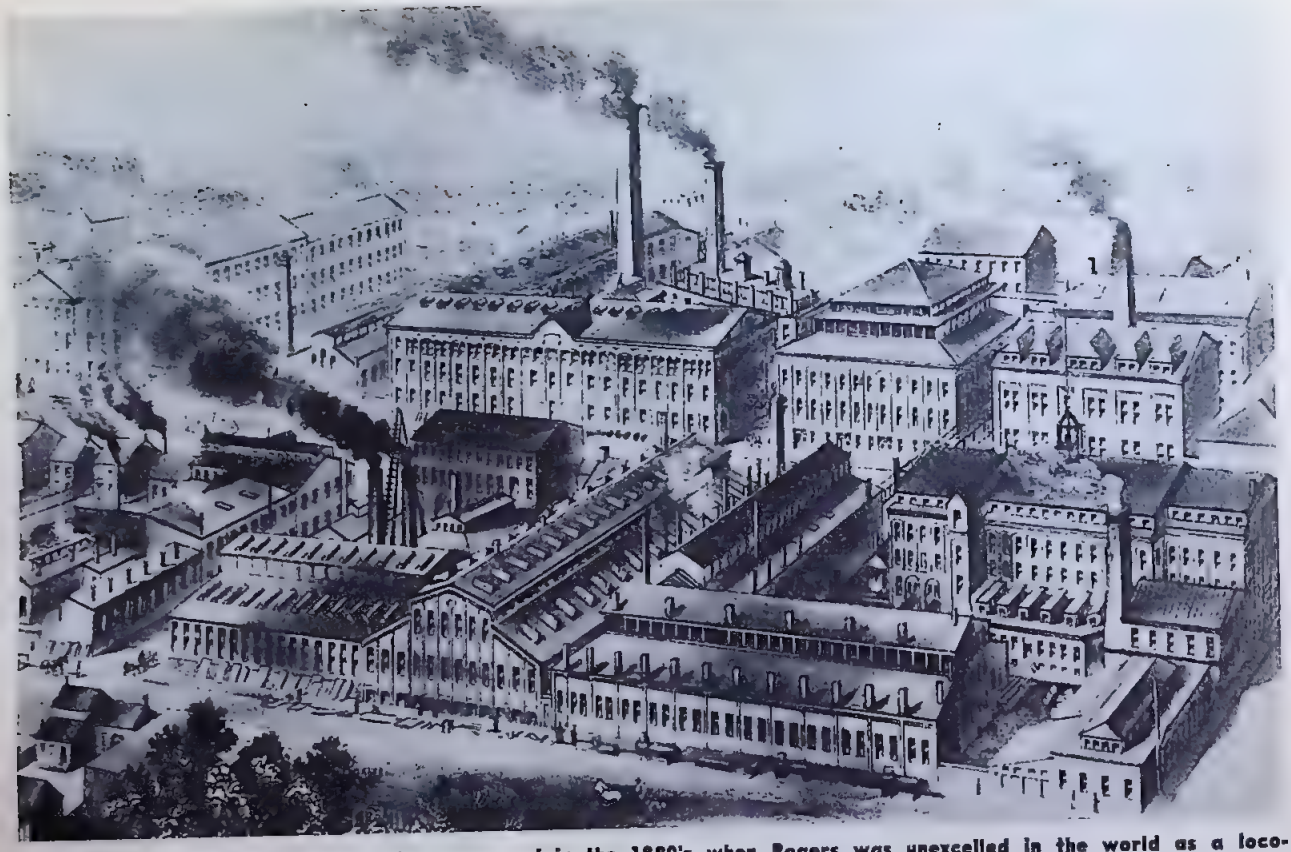
The beautifully-finished "America," which won the Grand Prix at the Paris Exposition in 1867 for Grant works. It was called a "poem in iron and silver."

The Chileans proposed a rugged test over the South American mountains. For four days Rogers outperformed Hawthorne in every requirement, whether speed or power. Thereafter Rogers was a prime builder for foreign roads. Even after the plant had been demolished orders came in from foreign countries which refused to believe Rogers was no more.

Paterson locomotives were usually out in front in any test—

Another stage in the development of the Rogers Works. This picture was made in the early 1860's when the plant was filling its rush of Civil War orders.





The Rogers Locomotive Works as they appeared in the 1880's when Rogers was unexcelled in the world as a locomotive builder. The company made its 3,000th locomotive in 1883 and built 6,200 engines before it was closed.

foreign or domestic.

Danforth & Cooke, for example, built the first practical hard coal burning locomotive in 1854 and proved its worth in actual competition sponsored by the newly built Delaware, Lackawanna & Western, which wanted a hard coal burning locomotive to use in bringing its anthracite to market.

Most railroad men said hard coal would burn out a fire box, but Danforth & Cooke built the "Anthracite" and sent it out to the coal fields to compete with one of Ross Winan's original "camel backs." (Just by way of being provincial, Winans was a Sussex County farm boy who had gone on to a brilliant career with the Baltimore & Ohio Railroad.)

The hard coal was carefully weighed out to rivals. There was no question of the superiority of the Paterson "Anthracite."

Those were memorable competitions, yet the greatest railroad battle of all times involved two Paterson locomotives—and it is difficult to say which really won.

The year was 1862. The location was Tennessee. The prize was control of a valuable stretch of confederate territory and the contenders were the "General" and the "Texas."

A band of Union soldiers led by James J. Andrews seized the "General" and its train on April 12, 1862, at Marietta, Ga., and headed North at breakneck speed for Chattanooga. Behind them they left Confederate Capt. W. A. Fuller, who had stopped the "General" for breakfast.

Fuller and his men put a handcar on the rails, pumped slowly after the "General" until they met the locomotive "Yonon." This they exchanged soon for the "Texas" and the chase was fully underway.

Along roared the "General." Its crew of Union soldiers stopped often to tear up rails or to cut telegraph wires. Mile after mile the woodburners rocked along, often in sight of one another. At one point Fuller rammed the "Texas" into a T-rail laid across the track. The engine rose off the track at 55 miles per hour but by some miracle landed back on the rails.

The terrifying speed over the uncertain rails made the "General" a smoking, dangerous locomotive after 65 miles. Andrews ordered his men to stop and flee as the "Texas" gained, sparks flying threateningly from its drivers. The two engines stood behind one another while the Confederates chased the Union soldiers through the woods.

It's too bad there wasn't a Jersey war correspondent on hand to record the scene.

Had there been, he would have noted the plate on the side of the "Texas"—"Danforth, Cooke & Co., Paterson, 1856." Equally inescapable was the plate on the "General"—"Rogers Locomotive & Machine Works, Paterson, 1856."

He would have remembered, of course, that Cooke had left Rogers to become a competitor. Possibly the date on the plates—1856—might have meant something to the Jersey correspondent too, as those two Paterson locomotives idled on the faraway Southern tracks.

It was the year old Tom Rogers died.

The Battle for Power

'Garbage,' 'Tunnel' and 'Frog' Wars Spiced the Struggle as Roads Sought New State Charters

TEMPORARILY the Camden & Amboy's officials, the "Earls of Bordentown" and "Marquises of Hoboken" were out of the headlines as the nation turned to contemplate the horrors of a Civil War. The "Earls" and the "Marquises" (as their opponents dubbed them) knew they weren't forgotten, but state's grievances against them had to be postponed.

It had always been a certainty that the Camden & Amboy would some day have to give up the incredible monopoly it held on railroad traffic between New York and Philadelphia from its inception in 1830. Just as the power of the Monopoly grew so advanced the public sentiment against it. Eventually the latter was bound to catch up.

At Civil War time, however, the Monopoly was stronger than ever. No railroad builder would dare to think of laying new tracks without giving careful thought to what the Monopoly would say.

Despite its stronghold on cross-state business, the Camden & Amboy couldn't point with any great pride to track improvements by Civil War time. It wasn't ready to handle the great volumes of New York-Philadelphia trade which the war precipitated, because in 1860 it was still a single-track line from New Brunswick to Trenton.

As a matter of fact, by 1860 the only double-tracked railroads in the state were the New Jersey, from New Brunswick to Jersey City; the Jersey Central, from Hampton to Elizabethport, and the Erie, from Paterson to Jersey City.

Regardless of track, all stood in awe of the Monopoly, because not only did it control traffic on the vital New York to Philadelphia route; it also exercised indirect control of the Hoboken Jersey City waterfront through its various connections.

This power led, directly or indirectly, to some of the state's most intriguing railroad "wars"—the Jersey Central's "Garbage War" with Jersey City, the "Frog War" at Hopewell in Mercer County and the "Tunnel War" out in the Meadows. More of these later, but first to the Monopoly.

In the beginning, back in 1830, you couldn't blame the capitalists who built the Camden & Amboy for insisting on a monopoly. Other money-men didn't rush forward with funds to help build. Rather, they held back—figuring that if the C. & A. made money they would ram a railroad through right alongside and help eat the gravy without any of the worry of setting the table.

You couldn't blame the state, either, for believing that it was a good deal because the Camden & Amboy Railroad gave New Jersey 1,000 shares of stock worth at least $100,000.

"You realize, of course," said the Camden & Amboy, "that if any competing railroad gets a charter you lose the stocks?"

Besides fighting among themselves, early railroad companies sometimes found themselves derided in handbills like this in the towns they fought to serve.

MOTHERS LOOK OUT FOR YOUR CHILDREN!
ARTISANS, MECHANICS, CITIZENS!
When you leave your family in health, must you be hurried home to mourn a
DREADFUL CASUALITY!
PHILADELPHIANS, your RIGHTS are being invaded! regardless of your interests, or the LIVES OF YOUR LITTLE ONES. THE CAMDEN AND AMBOY, with the assistance of other companies, without a Charter, and in VIOLATION OF LAW as decreed by your Courts, are laying a
LOCOMOTIVE RAIL ROAD!
Through your most Beautiful Streets, to the RUIN of your TRADE, annihilation of your RIGHTS, and regardless of your PROSPERITY and COMFORT. Will you permit this! or do you consent to be a
SUBURB OF NEW YORK!!
Rails are now being laid on BROAD STREET to CONNECT the TRENTON RAIL ROAD with the WILMINGTON and BALTIMORE ROAD, under the pretence of constructing a City Passenger Railway from the Navy Yard to Fairmount!!! This is done under the auspices of the CAMDEN AND AMBOY MONOPOLY!
RALLY PEOPLE in the Majesty of your Strength and forbid THIS
OUTRAGE!

The eastern entrance of the tunnel the Lackawanna started to build in 1874 after its clash with "Prince Erie."

Figuratively the state nodded its head.

What happened thereafter is a familiar story. The Monopoly grew too big for its boundaries. First it lobbied, then it entered politics actively and by 1850 the state's politicians found themselves hooked. Opinions on the Monopoly range from unmitigated vituperation to unconvincing whitewashes. The truth probably is somewhere in-between.

The word soon got out to the legislators: "Make sure to stop into Apartment No. 10 at Snowden's Hotel in Trenton." Visiting politicians were assured "no one connected with the Legislature need go to bed sober for want of champagne or with empty stomach for want of food."

Some of the newspapers mentioned bitterly that railroad matters weren't healthy in Trenton. To make certain the public got the facts as the Monopoly saw them, the group bought a Trenton paper and started a new weekly over in Freehold.

Little wonder, then that the Monopoly made and broke legislators and played vital roles in electing or defeating governors. Little wonder that bills friendly to the Monopoly were rushed through legislative sessions while unfriendly bills languished in committee. Little wonder that an occasional judge seemed, well, confused, when a Monopoly matter came up.

Then, in 1848, the "Citizen of Burlington" (later revealed as Harry C. Carey, noted political economist) charged in a series of published letters that the state was being gouged—and worse—by the Camden & Amboy.

"Shocking, shocking," said the Assembly. "We'll appoint a committee."

Selection of the committee was left to the Joint Companies! The committee gravely exonerated the group which had selected it, but paradoxically, so favorable was the report, that public clamor led to appointment of a new commission.

The new commission's report was generally favorable to the Monopoly, although it found some evidence that Carey was right. Nevertheless, it was charged up to bookkeeping errors.

The Monopoly emerged unshaken and in 1850 solidified its political position in Trenton. By 1860 the Monopoly was stronger than ever—and it decided to pull a squeeze play on the New Jersey Railroad, which formed the link between New Brunswick and Jersey City for the Camden & Amboy.

Edwin A. Stevens, treasurer of the Camden & Amboy, had gradually acquired a substantial interest in the Morris & Essex Railroad (from Newark to Dover). In 1857, Stevens and his Hoboken Land and Improvement Company applied for a charter to build a new line to

This is the on-the-spot interpretation given the 1867 Hopewell "Frog War" by a N. Y. Illustrated Graphic artist.

Newark to connect with the Morris & Essex.

The squeeze was on.

The New Jersey Railroad leaders squirmed. It sought to lease the M. & E. and it threatened to build a new line across state to compete with the Camden & Amboy. Noble proposals—except that Stevens influenced the M. & E. and the Camden & Amboy Monopoly controlled the Legislature, which in turn granted charters for new lines.

Suddenly two bills popped up in the Legislature. One gave Jersey Central the right to build a bridge over Newark Bay to extend its road to Jersey City. The second called for incorporation of the New Brunswick, Millburn and Orange Railroad.

That gave the Monopoly three clubs to swing at the New Jersey Railroad. It could say, in effect:

"First, we'll wallop you with the new extension from Hoboken. We'll only use one of the other big sticks —either we'll connect with the Jersey Central at Elizabeth or we'll build that new railroad up to Orange and connect with the Morris & Essex."

The New Jersey Railroad must have felt like a tomato vine with its roots cut off. It held out for seven years but its capitulation was inevitable. In 1867 it agreed to consolidate with the Camden & Amboy and the Delaware & Raritan Canal to form a joint company, which gave the Monopoly complete control of all traffic crossing the state between New York and Philadelphia.

Jersey Central, on the other hand, found itself thrust into a pleasant position by the newly-found friendship of the Monopoly. It had long been stymied by having to send its freight into Jersey City by way of the New Jersey Railroad. Now

South Cove, Jersey City, before the Jersey Central imported New York garbage to fill in the broad mud flats.

The western side of Bergen Hill presented this appearance after the Lackawanna Railroad finally dug its way through to Hoboken and built a sturdy trestle to carry its rolling stock safely over the Erie's right-of-way.

it could have its own terminal across from New York.

There were a couple of geographic items in the way, however —the broadness of Newark Bay and the fact that in Jersey City only the miserable mud flats of South Cove were available for a terminal location.

Bridging the two-mile-wide bay was a notable engineering job, but, faced though they were with building the longest bridge of its type in the world the Central engineers accomplished the feat in two years. Passenger traffic started over the bridge in 1864 and freight traffic followed two years later.

South Cove was another matter.

The first time Central's president, John Taylor Johnston, gazed at the Cove he saw only mud flats washed by sluggish tides, an area long considered the special preserve of oyster planters and boat fishermen.

Great amounts of fill obviously were needed. "Why not use New York City garbage?" Johnston mused, and the Garbage War was underway.

Month after month boats plodded methodically across the Hudson River, bringing the city's refuse to South Cove. Gradually the fill showed above the water, stretched 1,000 feet into the river. Day after day the angry but futile protests of Jersey City residents flowed Jersey Central's way, complaining of the reeking odors. The dumping went on, until at last Jersey Central had its present harbor terminal, built on ancient fishing grounds and New York garbage!

Never let it be said, of course, that Jersey Central was permitted to do all of this without more than a token bow to the Monopoly. The price—a guaranteed two-thirds of all New York-Harrisburg business to the Camden & Amboy!

The M. & E. arrived at Hoboken in 1862 via the Stevens branch line. Stevens also gave financial aid to the Erie Railroad as it blasted its tunnel through Bergen Hill between 1857 and 1860 so that M. & E. trains could use it. The Morris and Essex was leased by the Lackawanna in 1868 but use of the tunnel continued harmoniously—for a while.

As long as the M. & E. trains came in only from Morristown and points west the Erie had no complaint. However, it was a different story when the Boonton Branch of the Lackawanna was built to Hoboken by way of Paterson in 1870. The Erie felt that to be a definite infringement of its Paterson territory; when the time came for a physical rail connection outside Bergen Tunnel trouble flared.

"Prince Erie"—Jim Fisk—took matters into his own hands early in December, 1870.

First he had a locomotive placed across the mouth of the tunnel and he brought 1,000 men to see that it wasn't moved. The fact that no Erie trains moved either was a matter of small moment to Fisk. As long as the Lackawanna trains were stopped "Prince Erie" was happy.

Thousands of angry passengers milled around the tunnel. Violence seemed imminent when Governor Randolph hastened to the tunnel, meanwhile alerting a company of militia.

"Take that locomotive off the tracks, Jim," Randolph ordered. "You're holding up the mails. If you don't I'll take possession in the name of the state."

Fisk hesitated. Randolph snapped, "And I have troops to back me."

The locomotive was removed but for days the Erie intentionally slowed down all trains through the tunnel, deepening the Lackawanna intention to build its own tunnel through the hill as soon as possible, which it did between 1874 and 1876.

Down in Trenton the days of the Monopoly were numbered. Public indignation was rising. Even some legislators were beginning to rebel. The Pennsylvania Railroad was in the offing, looking for a route to New York. On June 30, 1871, the United Companies were leased to the Pennsylvania for 999 years.

No great joy was stirred by the lease. The New York Herald commented:

"The halo of New Jersey's glory has left her. Her Ichabod hath departed. The Camden and Amboy road, the pride of the state and the ruler of Legislatures, has been ceded to Pennsylvania."

The United Companies got out just in time. State sentiment was barreling toward a general railroad law and the abolition of special charters. Finally, on April 2, 1873, the general railroad law was enacted, giving competitors of the Pennsylvania the right to cross the state between New York and Philadelphia.

But there was still one battle left in the Monopoly.

Taking advantage of the new state law, the Delaware and Bound Brook Railroad started to build from Jenkintown, Pa., to connect with the Jersey Central at Bound Brook (and to form, incidentally, the present Reading line). Directly across the projected right-of-way was the now long defunct Mercer & Somerset, a branch of the Pennsylvania Railroad.

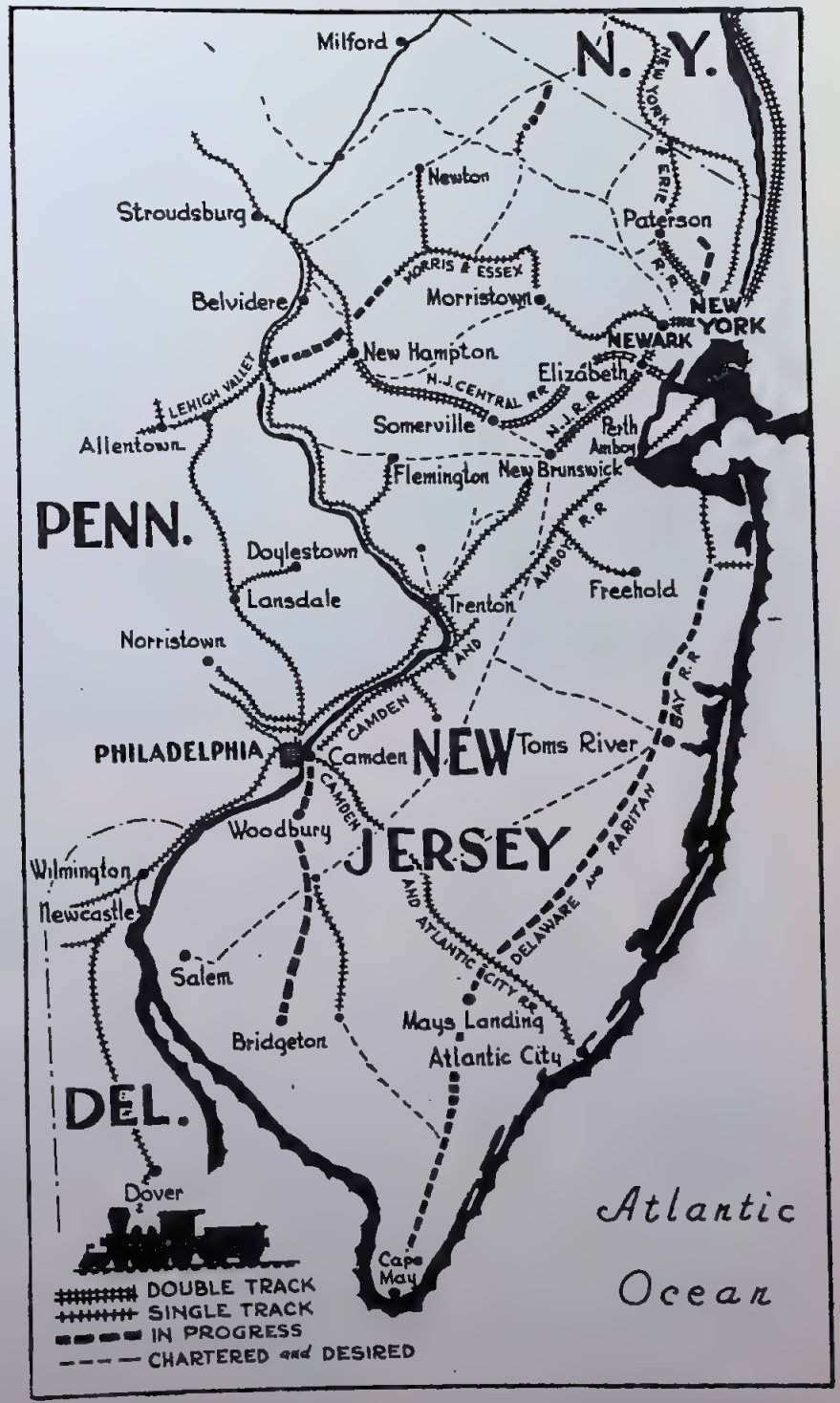
There was no trouble until the D. & B. B. had to put its "frog" or crossover connection in the Mercer & Somerset tracks near Hopewell. The Pennsylvania stopped the laying of the frog by placing a locomotive on the tracks where the connection was contemplated.

On the bitterly cold night of January 5, 1876, the locomotive backed into a siding to let a through train pass. Immediately 200 D. & B. B. workers chained the engine fast to the siding, then set out to barricade the track while they put in their frog.

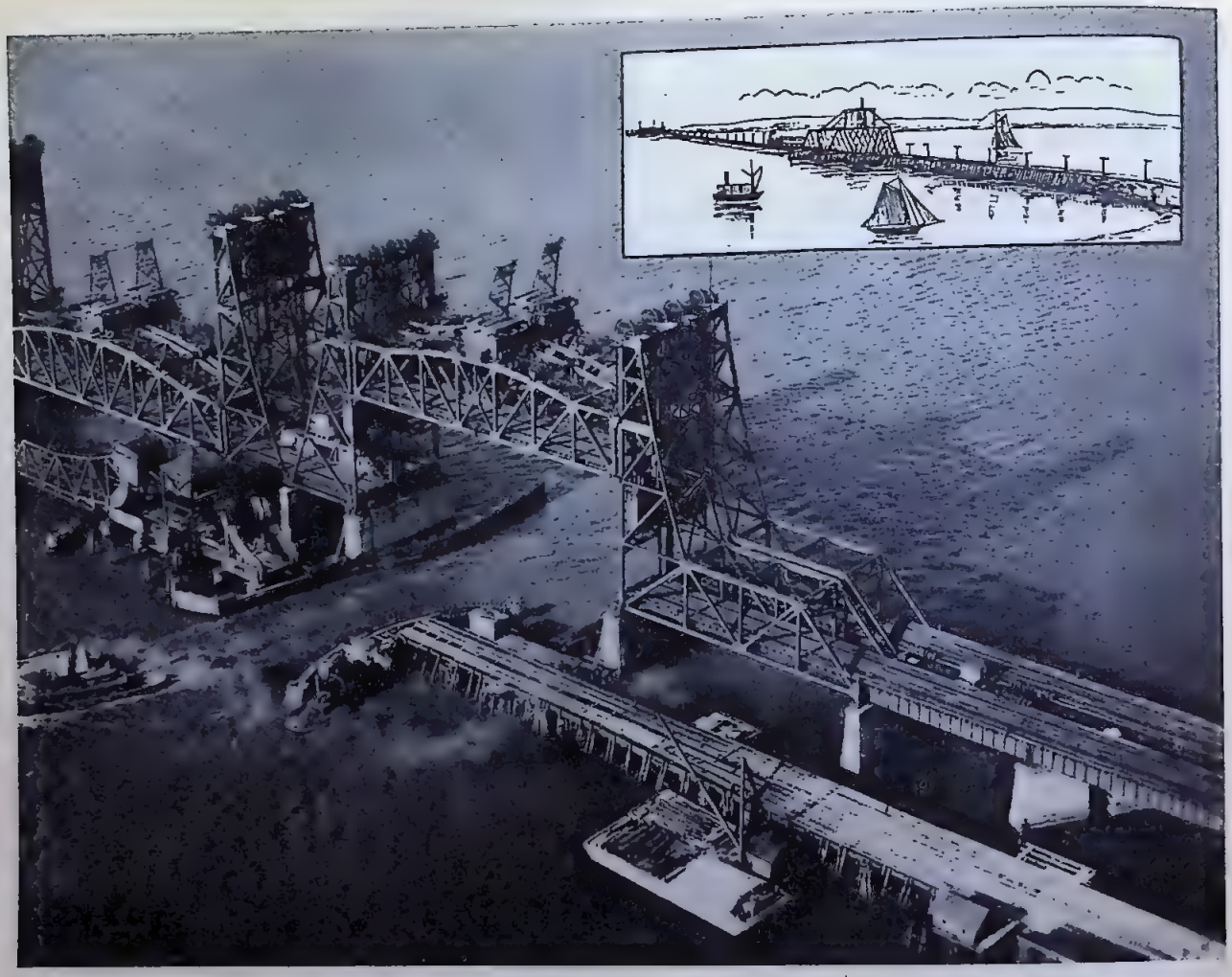
Meanwhile, orders went out to bring Engine 336 down from Millstone to ram the barricade. Old 336 made the 11 miles in 15 minutes and went roaring through the barricade sending ties, rails, tools and lanterns scattering. She nosed into the mud beside the tracks.

The next morning 1,500 people were on hand, many of them armed, and most of them friendly to the D. & B. B. crowd. In midafternoon four companies of Trenton militia marched at double time to the scene. Reporters "swarmed over the scene

NETWORK OF TRANSPORTATION LINES



Reproduction of 1860 map, which shows existing or projected Jersey railroads.



Present Newark Bay Bridge of the Jersey Central is shown shortly after being put in operation in 1926 to replace the 1904 "jack-knife" bridge beside it. Inset shows the two-track timber trestle opened to traffic in 1864.

like bees at a molasses keg." One false move and skulls would have been cracked, squirrel guns would have sounded.

There was no false move and on January 7 word came from the Chancellor in Trenton that the new Bound Brook line could lay its frog and continue to Bound Brook.

The partisan crowd cheered wildly. Down on those Mercer Plains the right of any railroad to build its line across New Jersey was at last proved. Now the railroads could get on to the business of trying to win back some of the customers they had forgotten while they battled for power.

'Robber Barons' vs. The Public

Some Profit-Greedy Tycoons Thought Safety Devices Unnecessary Until Outraged Public Forced the Issue

"THE PUBLIC? What about the Public, always complaining about the railroads? Vanderbilt's right—the public be damned! This is an age of money men, mister, and don't you ever forget it!"

The voice of the Robber Barons was heard o'er the land, particularly up state on the poor, hopelessly-broke Erie. What Daniel Drew, Jay Gould and Jim Fisk did to that railroad 80 years ago shouldn't have happened to a stage coach route, and the public was swelling its voice in protest.

Not confined to the Erie by any means were the complaints. Editors throughout New Jersey were grumbling about the accidents which had been on the rise on every railroad since the 1850's. Railroad workers were being killed or maimed in their daily struggles with poorly kept or outmoded equipment. Safety devices were thought by many railroad heads to be a thing for foolish sentimentalists.

Somehow, though, when men gathered in the waterfront taverns the talk was always of the Erie.

First, they had discussed with great excitement the building of the country's then greatest railroad from Piermont on the Hudson River to Dunkirk on Lake Erie. The first through train on the Erie in May, 1851, gave just cause for talk.

"Longest railway in the world outside of that one in Russia between Moscow and St. Petersburg . . . They say President Fillmore and Daniel Webster rode that train all the way to Dunkirk . . .

"Yes, and Daniel sat on a flat car all the way—the better to admire the scenery and the better to rise and rumble heartfelt praises for the Erie, the world and New York scenery every time the train stopped. No wonder his throat was sore when the train reached Dunkirk!

"A wonderful railroad, that Erie. Tracks six-feet wide . . . Nice and comfortable . . . Odd, though, they should build so big when every one else is building only four feet, 10 inches wide. That'll cost them plenty when they connect with anybody else . . ."

By 1852 the connection for and through New Jersey was made at Suffern, N. Y., by way of the Paterson & Ramapo and the Paterson & Hudson River railroads and the Erie ran into Jersey City. The Erie management laid another rail, to permit its extra-wide cars to travel over the new right-of-way (and it cost plenty, incidentally, to change to standard gauge 30 years later.)

New Jersey now began to know the trouble which dogged the Erie. Accidents seemed to be its unceasing lot, so much so that in 1852 a Paterson paper's headline read:

A COLLISION! WE'RE GETTING USED TO THEM NOW!

Many disasters occurred where

One of the earliest block signal stations in New Jersey, where the new signal system was first tried in 1863.

the six foot gauge Erie tracks met the narrower tracks of the New Jersey Railroad at Marion, just west of Bergen Hill. Switch tenders couldn't tell which railroad train was coming and sometimes they guessed incorrectly and upset a train or two. Things got only slightly better when the piping on the N. J. R. R. was painted red and the Erie carried a light by night.

Then there were nights like May 21, 1853, when the nightly Erie emigrant train for the West pulled through Bergen Cut. The conductor held the train three minutes at Marion, then decided the down Erie train had forfeited its right to the track. The emigrant train started toward Paterson.

A mile beyond the cut the eastbound Erie express collided head-on with the emigrant train on the single track. Two trainmen died but none of the panic-stricken passengers was fatally injured.

They questioned the conductor of the emigrant train. "How was I to know we were running on a new schedule?" he asked. "I was running on the old!"

Jersey City became alarmed and passed an ordinance limiting the speed of locomotives in the city to six miles an hour. Still the accidents went on as trainmen forgot to wind their watches, ignored warning lights or scoffed at men stationed in Bergen Cut to watch the tracks.

Ashbel Welch of Lambertville, C.&A. engineer who devised block signals.

The Erie nevertheless pioneered many safety measures and an Erie man, the redoubtable 300-pound "Pappy" Ayres, established the right of a conductor to control the train. Pappy hung a stick of wood in the engineer's cab and attached a long piece of rope to it so he could signal the engineer when to start and stop by bouncing the stick.

The engineer threw the stick away.

Pappy replaced it. The engineer took it down. Pappy waited until the next stop and then soundly thrashed the engineer. Thereafter, the stick stayed until replaced by a gong and one might even say that today's air signal cord owes its existence to Pappy Ayres of the Erie.

Another Erie man, Superintendent Charles Minot, was the first to use the telegraph in controlling the run of a train. Since the telegraph became basic in all safety devices up until the end of the 19th Century the more's the pity the Erie couldn't capitalize on its head start.

Part of the trouble lay with the superseding of Minot as Erie superintendent with Daniel Craig McCallum, artist-poet. Appalled by the Erie accidents, McCallum in 1854 drew up a set of safety rules, including the one that required a red ball to be hoisted by day and a red light by night to show that the west bound train had not passed a given point.

McCallum had good intentions. Unfortunately, his rules placed the entire burden on the engineer. Immediately the engineers struck. Years of unpleasant labor-management relations followed. There was sabotage; engines began to deteriorate rapidly, often because engineers forgot to check water levels in the boilers. Things got so bad that Paterson papers warned passengers not to ride the Erie during the strike.

More labor trouble followed when the Erie started to blast its tunnel through Bergen Hill in 1856. Before the tremendous project was finished in 1861 the Erie was bankrupt and 57 workers had perished beneath the hill.

Troubles, troubles, nothing but troubles on the Erie. Enough to divert attention from the terrible wreck on the Camden & Amboy Railroad in 1855, one of the country's worst railroad accidents up to that time.

The engineer of the westbound C. & A. train passed a turnout at Burlington when suddenly he realized a northbound train was due. He threw the train into reverse and backtracked for the turnout. At that moment a team of horses started to cross the track. The rear car of

Old-type ball signal, from which the railroad term "high-balling" started.

First automatic semaphore, used in 1893 near Phillipsburg, New Jersey.

the train was derailed as it struck the team. Other cars jumped the tracks. In the midst of the dreadful confusion rescue workers counted 24 dead and 100 injured. Fortunately the eastbound train train was halted in time to prevent further carnage.

Public indignation clamored for an investigation. The C. & A. put its company-minded investigators to work and reported that the entire fault lay with the driver of the team! A bill was introduced in the Legislature requiring railroads to observe some safety measures, but the railroad lobbies defeated the measure.

That excitement faded as new Erie railroad talk came along. Daniel Drew had lent the railroad almost $1,000,000 to help build the Bergen Tunnel. All Dan'l got in return was appointment in 1857 as the railroad's treasurer, something akin to putting a three-year-old to guard the lollipops.

These were railroading's saddest days. Drew, whose biographers have never been able to lend him physical charm or detract from his fiscal rascality, ran the Erie treasury into the ground. Coincidentally, his personal holdings rose, until by 1867 he was a millionaire many times over.

He was rich enough in that year to begin thinking about how he was going to get into heaven. He made a gesture in that direction by founding a seminary in his name in Madison in 1867, the same year that he brought Jay Gould and Jim Fisk into the Erie.

Mr. Drew was bad enough. With Gould and Fisk to help him the Erie was in for even sadder days.

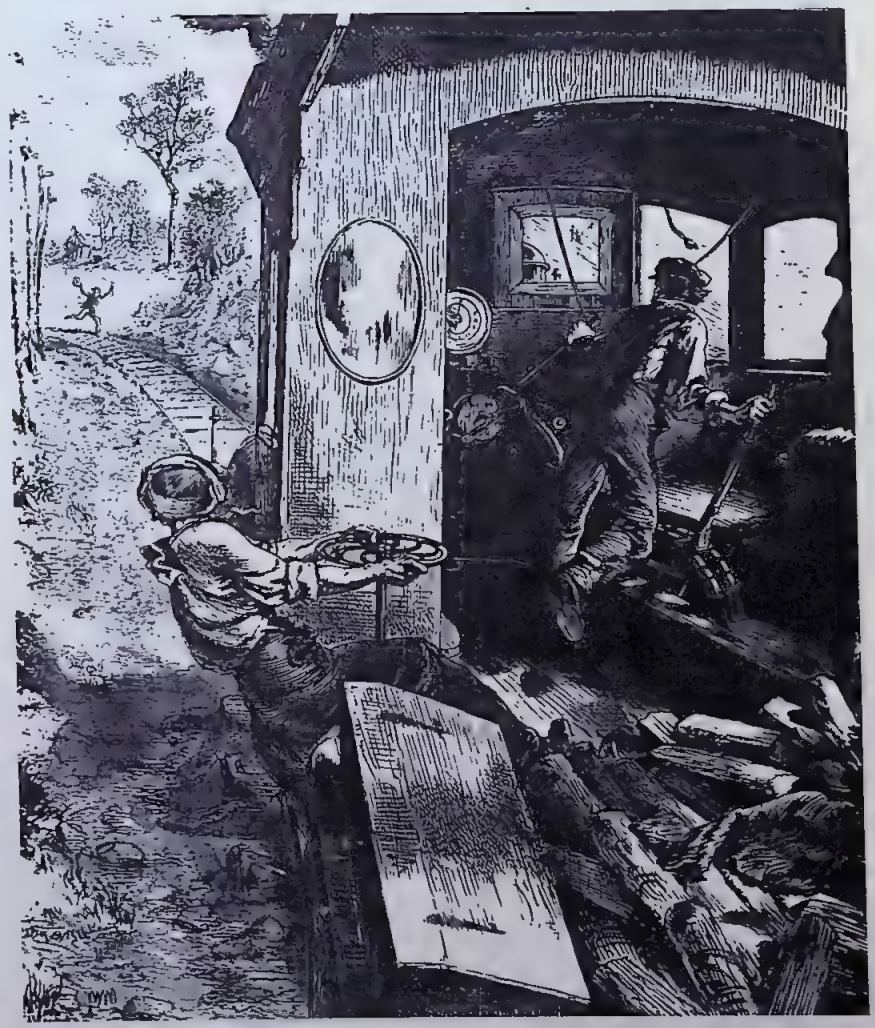
In New York, Cornelius Vanderbilt also had his eyes on the Erie and in 1868 he decided on a showdown with Drew. How Drew balked Vanderbilt's attempt to purchase a controlling interest in the road by printing new stock as fast as Corny bought it is a well-known sordid story. A writer of the day declared that "every kind of knavery, bribery, fraud and corruption highlighted the Drew-Vanderbilt battle." Judges were bought and sold. Tammany Hall wove in and out of the clash. Finally Uncle Dan'l and his cohorts fled to Jersey City with a substantial slice of the Erie treasury in their bags and Vanderbilt sued for terms.

Needless to say, the terms were at the Erie's expense.

Then, Drew, Gould and Fisk got snarling among themselves and Gould and Fisk turned on poor, skinny Dan'l. Between them they caught him in a stock corner and left him penniless (unable even, they say, to make good on money promises to Drew Seminary). Gould and Fisk saddled the Erie with even greater liabilities, the worst of them being the scandal which hung over the unfortunate railroad for decades, no matter how hard it tried to improve.

Now to the Philadelphia & Trenton Railroad, and one of the most compelling wrecks in railroad history, because it helped pioneer the block signals in use today.

This involved two troop trains bound from Philadelphia to New York, on the line linking the Camden & Amboy between Philadelphia and Trenton. One crashed into the rear of the other on March 7, 1865 at Bristol, Pa., killing six and wounding 40. The accident shook the East, but above all it disturbed one Ashbel Welch of Lambertville, vice president and engineer of the Camden & Amboy.



Emergency stops were commonplace in pre-signal and airbrake days and this early sketch shows engineer reversing train in response to warning of man on tracks.

Before the troop train crash the usual system of stopping trains had been simply to wire back if a train did not pass a station when it should. If the operator happened to doze off or if the telegraph apparatus didn't work or if the operator misread a message the possibilities of rear-end collisions were great. Some experts, including Welch, felt the danger was increased.

Welch decided as early as 1863 to reverse the process. His prin-

Artist's conception of Camden & Amboy derailment of August 29, 1855, when a train backed into a team of horses.

ciple was that no train should enter a block (a designated mileage of track) until notified it was clear, instead of proceeding unless a red light was shown. Thus, even if the telegraph operator failed to get a signal from ahead no following trains moved until engineers got the all-clear.

Welch's system was simplicity in itself. It consisted of a box set on a post, with a white surface showing (a white light at night). As soon as a train passed a signal station a red flannel banner was dropped across the white surface (or white light) and it remained in place until telegraphed word was received that the block ahead was clear.

The system was extended as far as Jersey City in 1867 and by 1876 it was in operation between New York and Philadelphia on the Pennsylvania's main line, in time to permit the Pennsy to move huge volumes of traffic for the nation's Centennial celebration.

New Jersey further contributed materially to railroad signals when the world's first automatic semaphore signal—motor operated—was installed in 1893 at Black Dan's

Woodcut of 1853 shows the wreckage when the Erie Railroad's emigrant train smashed into the eastbound Express.

Private car of Jay Gould, pictured on Erie siding in 1870's. Gould is in center of figures on rear platform.

Cut, near Phillipsburg.

Soon after he devised his block system Welch was at work on another vital safety device—the interlocking switch system, which worked all switches and signals at a junction. Welch first installed the system on an experimental basis "on the top of the hill" where the Bordentown line hit the main line at Trenton. Welch's newest device meant that trains could safely approach an interchange without fear that switches would be improperly set. Setting one switch locked all others in place. Incidentally, the nations first permanent interlocking system was installed by the Pennsylvania in East Newark in 1875.

Meanwhile, throughout the railroading world, George Westinghouse (Union Army veteran) was attempting to interest railroad officials in his air brake, and Eli Hamilton Janney (Confederate veteran) was trying to get some one to try his automatic car coupler.

When Westinghouse returned from the Civil War in 1865 the nation's railroads were strewn with ineffective means of controlling speed. He filed his first claim for an air brake patent in 1868 and two years later started to manufacture it, but it took 20 years before its use was universally accepted. Railroad authorities agree that without the air brake, trains would have had to struggle along with 20-ton locomotives, 10-ton passenger cars, 15-car freight trains and 30-mile-per-hour speed limits. Westinghouse literally freed the railroad from its 30-year-old shackles.

Janney's coupler was tested on the Pennsylvania and made a part of that railroad's equipment by 1876, but by 1890 more link-and-pin couplers were in use despite the spreading adoption of the automatics. The turn of the century saw the end of link-and-pin couplers.

Still, according to Stewart Holbrook, railroad historian, railroads of the 1870's "were a law unto themselves," with workmen the innocent pawns. Laws of the day made railroads exempt from injuries to their workers. Harper's Magazine in 1874 commented:

"As long as automatic couplers cost more than trainmen we may expect the present sacrificial method of car coupling to continue."

Mr. Holbrook also pointed out

Shortly after the Lackawanna's terrible wreck in the Meadows in 1894 it began installing the Hall type of automatic block signals, one of which is shown below beside the tracks at Brick Church, before the railroad was elevated there.

A Newark newspaper artist sketched this scene in the Meadows in 1894 shortly after the "South Orange Accommodation" rammed into the stalled Dover Express.

that every time a financial recession hit the country the railroads lapsed into shoddy operation, although stock dividends remained at 8 to 10 per cent levels. One sure way to keep dividends high was to cut wages—and the resulting strikes of the 70s, many of them bloody, were inevitable.

Finally the country rebelled and the result was the Inter-State Commerce Act of 1887 and the Railroad Safety Appliance Act of 1893. The railroads insisted they had long since policed themselves—yet, when the 1893 law was passed, the rate of employee accidents fell 60 per cent in a single year.

Early New Jersey railroad lore lists some unique policing methods used by railroads to prevent accidents.

Take the one on the New York, Susquehanna and Western Railroad in 1872, for example. One of the line's trains went through the Saddle River bridge and President C. A. Wortendyke ("a man of tender feelings who utterly abhors the very mention of a railroad disaster") decided to test all bridges.

It was a test of the most direct sort.

The railroad's top officials—and, perish the thought, the press—were loaded on a company locomotive which was run out on the bridges. Then another locomotive was run out behind it and the bridge sag noted.

At Weasel bridge over the Passaic an extroadinary test was made. In addition to the two locomotives, two cars loaded with gravel "atop which sat the laborers, a funny-looking set of Danes, Swedes and Russians" were hooked on. The two locomotives, gravel cars, laborers, officials and reporters all "rushed across the bridge at great speed." The test "proved the bridge as solid as a rock."

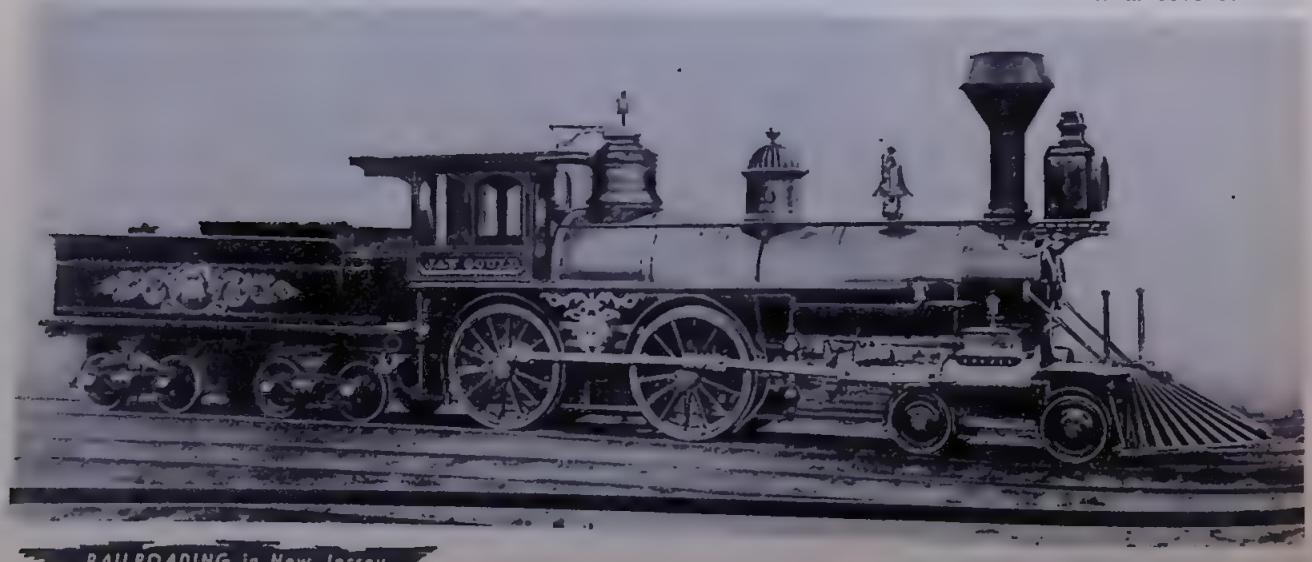
Significantly (or perhaps coincidentally) the bridge was nevertheless ordered strengthened.

One of the last railroads in the state to adopt comprehensive signalling methods was the Lackawanna. Its procrastination was due to the fact that it considered its line had "sober, capable engineers." The assumption of accident-free operation was sound—the Lackawanna had not had a passenger fatality in 40 years of operation.

A dense fog rolling in from the meadows on a January morning in 1894 put an end to sole reliance on "men who know how to run a railroad." On that misty morning the Dover Express slowed down near the Hackensack River drawbridge because of the thick fog. The South Orange Accommodation, highballing along, rammed the rear of the Dover train and 11 dead and 35 badly injured eventually were taken off the Hackensack Meadows.

Within a month demands of an outraged public forced the installation of automatic block signals, to supplement the unquestioned good judgment of the Lackawanna's "cold-water drinking engineers."

Gaudy wood-burning locomotive named in honor of Jay Gould, when he was president of the Erie from 1868 to 1872.



The Little Fellows

Railroad Fever Brought on Rash of Feeder Lines to Serve Jersey Towns Seeking Access to Markets for Products

THE 19th CENTURY howling and screaming about the railroads seldom got off the main lines. Let a locomotive jump the track on the Pennsylvania or the Erie or a passenger train be late on the Lackawanna or the Jersey Central and indignant editors, legislators and commuters filled the air with anguished complaints.

Let the same thing occur on one of the little lines stretching into the farmlands or the iron regions, however, and the general response was a chuckle or a shake of the head. The folks had a special love for their own little railroads!

Maybe the affection was prompted by the fact that many of them owned stock in the little line with its teakettle engine and its rusty tracks. Maybe it was the fact that many of them felt twinges of guilt because they didn't patronize the railroad as much as they had promised back in the days when they were demanding that it be built. They just forgave the little fellow for things which really weren't his fault.

Demands for railroads to link towns like Newton or Peapack or Lambertville or Bloomfield with the Big City started soon after plans for major lines were made in the 1830's, but the era of short line building didn't really get underway until the 1850's.

Many of the short lines collapsed quickly and some of them died lingering deaths. Some were swallowed up by larger systems and a handful survived to become important and successful in their own rights. Whatever their eventual fates, they all had much in common, call them what you will—short lines, bridge lines or branch lines.

Actually, of course, the whole tradition of New Jersey railroading in its infancy was one of building short stretches of track to link specific points. Often separate companies were formed to extend the lines, then the extensions were consolidated into larger systems. That's the way the trunk lines grew. Some of the "little fellows" dealt with here were first visualized as parts of grander systems, stretching from the Atlantic to the Pacific (or, at least, from the Hudson to the Delaware).

Many of the shorter roads were projected before the Civil War, when powerful monopoly interests determined how and where railroads could be built. Most short lines finished before 1880 found themselves cannibalized by major systems; those which survived to become sturdy independents were launched in the last two decades of the 19th century.

Financial necessity made short line builders recreate the earliest railroading days, such as using ancient cast-off rolling stock on their wriggling, second-hand tracks. Those builders were visionaries who stomped up and down valleys or tramped over mountain slopes

Lambertville around 1880, with a Belvidere & Delaware Railroad train steaming past the old India Rubber Works.

Trusty old Engine No. 9, said to be the Sussex Railroad's first six-wheeler.

seeking money to build. They withstood the taunts of their neighbors. It took courage and it took salesmanship; they had both.

Wagons had sufficed grandfather in Hunterdon County to get his milk and cattle to market, but it wasn't good enough for grandson in 1850. Mules had been sufficient to get grandfather's iron from the Sussex and Morris mines, but grandson wanted a railroad in 1870. Grandson also wanted a railroad in 1890 to bring in his coal, to haul his farm and orchard crops to market or to take himself to his job in the city. Whatever grandson wanted, he usually was enthusiastic about his community railroad.

He reacted, for example, like the editor of the Hunterdon Gazette in 1854, the year the Belvidere-Delaware Railroad reached Belvidere after six years of building up the banks of the Delaware River from the Camden & Amboy (now Pennsylvania Railroad) tracks at Trenton. The editor wrote pridefully:

"At last the ears of our delighted population are greeted with the melodious sound of the steam whistle!"

The river-front population soon called their railroad the "Bel-Del" with deserved affection because the line brought new prosperity to the rich valley. Among other things, it brought railroad shops to Lambertville, where in 1851 a locomotive, the "Warren", was built. It was a proud day for Lambertville when the wood-burning "Warren" pulled out on the main tracks, with smoke and sparks belching from its flaring stack and the sun glinting from its burnished headlight.

The railroad also opened new vistas for the little river communities. A Hunterdon County paper of 1869 records a Saturday night in Frenchtown, when 83 people met the evening train. Only four people got off, but who could tell when some night would bring a story-telling drummer from Philadelphia?

Enthusiasm for a local railroad also was rife in Newton, where farmers heard in 1850 that the big iron men, Cooper & Hewitt, planned to build the Sussex Mine Railroad to haul their ore from Andover to Waterloo on the Morris Canal.

"Won't be much of a railroad; just a little muledrawn line," Cooper & Hewitt insisted.

"How about if we raise $100,000? Will you build on up here and make it a real steam line?" Newton folk asked.

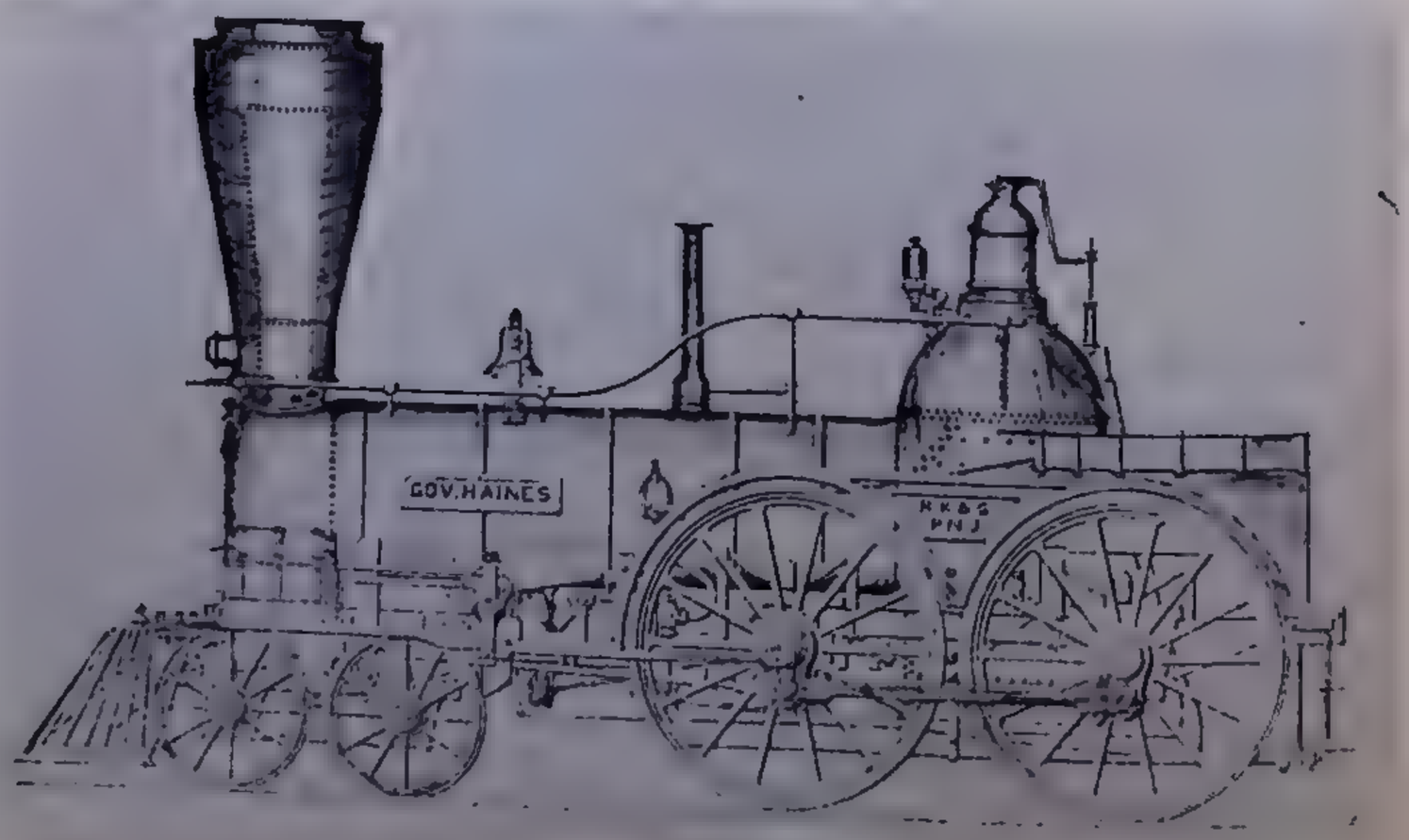
Certainly. So the name was changed to the Sussex Railroad and on December 11, 1854, a crowd of 700 people gathered in the frosty Sussex County air to welcome the first locomotive. Booming cannon provided a fitting background for the congratulatory speeches by town notables.

Newton grew quickly. Within two years a newspaper in this county seat could report that for many months farm wagons had creaked into the town's freight station laden with farm products. Some days the line stretched all the way from the depot up Spring street to the courthouse!

What's that again about enthusiasm for a railroad? Take note of this: On January 24, 1857, when a heavy snow swirled huge drifts over the tracks, 80 Newton men set out to clean the tracks themselves! They worked southward to below Drake's Pond, where they met the railroad gang working up from Andover.

Sussex Railroad eventually lost its identity. First it spread itself outward, to Lafayette and Branchville and Franklin and McAfee, hauling heavy iron ore and limestone shipments. In 1881 the Lackawanna bought control of the line and built a cutoff about the turn of the century to by-pass Waterloo and bring the tracks to a more usable connection at Netcong. Through trains then could run

The "Gov. Haines," first engine on the Sussex Railroad, was purchased in 1854 after the road was completed from Waterloo on the old Morris Canal to Newton.



Early Rogers engine, built in Paterson for the Hackensack & New York Railroad.

from Franklin to Hoboken without turning the locomotive at Waterloo and putting it on the other end of the train, as had formerly been necessary—since the original connection was only for the westbound movement of freight.

The new through route, incidentally, furnished a great source of amusement to the worldly young men of Dover. As the rural Sussex freight train stopped for water in the latter spot, calves on their way to market would set up such a bawling "that you could not make yourself heard."

"Listen to the Sussex band!", the Dover funny-men would yell, holding their sides in laughter.

A somewhat more restrained enthusiasm greeted the Newark and Bloomfield Railroad after it was finished to West Bloomfield (now Montclair) in 1856. One car was more than enough to handle all the passenger traffic. At the end of six months the railroad sadly reported a deficit of $330.

The Newark & Bloomfield had twin destinies: It was to grow into a vital line through one of the state's prime commuting areas and it was certain from the start that it would become a part of the Morris & Essex (later Lackawanna) operations. The absorption took place officially in April, 1868.

Montclair's original Newark & Bloomfield depot "looked like what you would expect to see in a mining town built overnight", as one old-timer recalled it. The station agent and his wife lived in one end and if ever there was a man with a multiplicity of jobs it was that agent. He was, nevertheless, typical of station agents on short lines everywhere.

Primarily, of course, he sold tickets. Between trains he was telegraph operator, express agent, freight agent, general manager, and hero to the men and boys who gathered in the station to chatter about the railroad and life in general.

Down the line in Glen Ridge—then known as Ridgewood—the station agent did everything the Montclair man did and then some. He was also postmaster, barber and dentist. Later he also was responsible for getting the station cleaned up for the Sunday evening church services held in the station from January, 1878, and for many years.

Railroad fever in that West Essex area brought one vital change to the region—the establishment of Montclair as a separate municipality.

It seems that West Bloomfield demanded better rail service. Bloomfield refused to face the possibility of bankruptcy to help build another railroad out into the fields and orchards. Town fathers said: "Let West Bloomfield get out and build its own railroad if it wants one so badly."

West Bloomfield took the hint in 1872, seceding to set up Montclair as a town. The Montclair Railroad (an independent line) was built to reach Jersey City (via a connection with the Erie Railroad) at a cost of $4,000,000, a sum which for a while threatened the collapse of the rural township. The voters were more than happy to see their railroad absorbed by the New York and Greenwood Lake Railroad in 1876, which in turn became part of the Erie Railroad's spreading system. A financial failure, the new road nevertheless served to open up the Upper Montclair section.

Another railroad destined eventually to come under the Erie's wing began creeping north through Bergen County in the middle 1850's, but there was no thought of Erie dominance when John VanBrunt, Tom Demarest and John Billings trudged through the county trying to drum up interest in the Northern Railroad of New Jersey.

The three men spent the best

Many a person rode behind this little "Peanut Roaster" on the Morristown & Erie from Morristown to Essex Fells before the automobile doomed passenger traffic.

Old-time crew poses near one of Lehigh & Hudson River's first passenger trains.

part of three years seeking to share their dream with prosperous farmers of the north Hackensack River Valley. They called on every property owner on the west slope of the Palisades from Jersey City to the New York state line, telling how the new railroad would bring countless new families into the county. The audience was lukewarm, but by 1857 enough land had been secured for the right-of-way and in 1858 the first train rolled over Northern Railroad steel from Jersey City to Nyack, N. Y., crossing the original line of the New York and Erie Railroad at Sparkill, N. Y.

Commuters were attracted from the first. In less than three months after service started with one train each way daily, demand had forced the addition of two extra round-trip trains. Villages grew where only pastureland had been before, then villages expanded into towns; the future of Englewood, Tenafly and other Bergen towns was inexorably set.

The Northern Railroad success encouraged other railroad entrepeneurs in Bergen. Early in March, 1867, the Paterson Weekly Press reported that 15 "lobbies" from Bergen had been attending sessions of the legislature. Said the Weekly Press:

". . . There is no doubt that the railroads would all be paying investments, for if there is not enough business done to make them pay now they will help build up the sections they traverse so that in a few years the line of each road will be dotted with a series of villages and they will have business they can transact."

Agreeing, promotors of the Hackensack & New York Railroad Co. sought funds for their railroad to join Jersey City and Hillsdale in western Bergen. They completed the 21-mile railroad late in 1869; the first gay excursion train whistled up through the valley on March 8, 1870, foretelling rapid expansion for the settlements of Carlstadt, Wood-Ridge, Lodi and towns on up the valley such as Oradell, Kinderkamack (Emerson), Westwood and Hillsdale.

Erie domination in Bergen was inevitable. By 1869 it had gained control over the Northern and in 1898 it reached out for the Hackensack Railroad, by then known as the New Jersey and New York Railroad. The coming of Big Brother Erie didn't exactly help the railroads. Soon after the Northern slipped into Erie hands the Englewood Protective Association complained bitterly of the smoky, poorly-heated and poorly-lit wooden cars. They protested the soot pouring in the windows and they protested the poor service. They protested in vain.

Meanwhile, out in the rugged hill country of eastern Sussex County, another little fellow was being built to exploit the iron ore at Norman Hill near Ogdensburg. Called the Ogden Mine Railroad, the 10-mile single track venture stretched from Nolan's Point on Lake Hopatcong

Sussex Railroad's Engine No. 3, the "John I. Blair," named for the railroad builder, at Branchville in 1892.

to the mine. It was completed in 1866 and for two decades it prospered. Hundreds of tons of ore were taken out of the mines daily and trundled down to the Point to be loaded aboard a puffing Lake Hopatcong sternwheeler for transshipment to the Morris Canal.

Discovery of rich iron deposits in the Lake Superior region sounded the death knell of the mine in 1888, but three years later Thomas A. Edison bought the mineral rights and once again iron ore traveled over Ogden Mine Railroad. Edison sank an estimated $2,500,000 into the project, only to decide in 1898 that the ore couldn't be worked satisfactorily. Passenger trains continued to run in desultory fashion and for many years the railroad gained a thin livelihood from trains which hauled ice from Lake Weown and coal to the villages along the way, but the line was doomed—even though the Jersey Central reached out and bought it in the fading years.

Iron fathered that railroad failure, but dairy products proved a stronger progenitor of a Sussex County railroad which stretched rapidly across the northwestern part of the state in the early '80s. That was the Lehigh & Hudson River, today an important bridge line linking New England with the West and South.

The L.&H.R. started at Greycourt in Orange County, New York, in 1860 as the Warwick Valley Railroad, by 1880 had extended into New Jersey to tap the lime kilns at McAfee and to make a connection with the Sussex Mine Railroad. The following year its tracks extended to Belvidere and by 1890 it was complete from Easton to Maybrook (N. Y.), using 13 miles of the Belvidere-Delaware to go from Belvidere to Phillipsburg—thus forming a vital bridge link between the far-flung Pennsylvania Railroad system and New England.

Milk at first accounted for 60 per cent of the Lehigh & Hudson River's gross revenues, but farm profits have long since given way to other income (mainly through freight) as the single track line's importance grew as a bridge line between the South and New England via Maybrook and the Poughkeepsie Bridge route through Danbury, to New Haven and Boston.

The L.&H. is now a solid freight carrier, yet from 1913 to 1916 it had three years of hot-shot passenger glory in the days when the mighty Federal Express roared up and down the system on daily runs between Boston and Washington, D. C. Rolling out of Boston at 5:34 P.M., the sleek Federal headed for New Haven, over Poughkeepsie Bridge and on to Washington via the Lehigh & Hudson River, the Bel-Del and the Pennsylvania at Trenton. Many a West Jersey boy now grown to manhood remembers the far-off wail of the Federal as it roared between Phillipsburg and Maybrook in an hour and 50 minutes. There was real sadness when the Federal Express whistled goodbye in the darkness of January 9, 1916, when the Hell Gate Bridge was completed to provide an all-rail route via New York's Pennsylvania Station.

Montclair Railway.

Foot of Barclay & Christopher sts N.B. D.L.&W.R.R.

TIME TABLE No. 1.

To take effect January 1st, 1872.

PUBLISHED FOR THE INFORMATION AND GUIDANCE OF EMPLOYES.

Going North.		Stations.	Going South.	
No. 4.	No. 2.		No. 1.	No. 3.
A. M.	P. M.		A. M.	P. M.
Lv7.00	Lv1.50	New York	8.55	1.18
7.15	5.05	Hoboken	8.10	1.33
8.05	5.51	Paterson	7.51	3.19
8.23	6.10	Mountain View	Lv7.38	3.44
8.30	°6.17	Pequannac	°7.25	3.27
8.37	6.24	Pompton Plains	7.20	3.23
8.42	6.29	Riverdale	7.15	3.18
8.46	6.33	Pompton	7.10	3.13
8.56	°6.43	Winokie	°7.03	3.03
9.00	Ar6.47	Midvale	Lv7.00	3.00

° Indicates that trains stop on signal. Trains must approach all bridges and trestle work with great care, and must run over all trestle work very slow. All trains must come to a FULL STOP before crossing the New Jersey Midland and D. L. & W. Railroads, and conductors and engineers must be sure to run according to signal instructions. At Pompton and Mountain View crossings the BALL WILL BE RAISED as a signal that trains have the right to go across. Trains are run by D. L. & W. Railroad time, and conductors and engineers must see that their watches agree with it. The Rules and Regulations must be carefully observed. Engineers and conductors are required to keep a copy of this table with them when on duty.

H. A. FULLER.

Time Table No. 1 of the Montclair Railway, "to take effect January 1, 1872."

Erie locomotive and crew of commuter train on Morristown & Erie track in 1904.

Coal lured another bridge line across Sussex County in the late 1880's. Known today as the Lehigh & New England—and still powerful, by the way—the line was planned to run from Hauto, Pa., in the heart of the anthracite region, to Maybrook, N. Y., a distance of 132 miles.

The railroad was projected as the Pennsylvania, Poughkeepsie and Boston Railroad, which suggests rather obviously its prime function —to carry coal from Pennsylvania to Boston via the Poughkeepsie Bridge. The line extended eastward from Hauto to Hainesville Junction in Jersey, then secured trackage rights over the New York, Susquehanna & Western to Swartswood. From there the P.P.&B. laid its own tracks through Deckertown (now Sussex) and on to Maybrook and a connection with the Poughkeepsie Bridge route.

Sussex County residents quickly recognized the value of both the Lehigh & Hudson River Railroad and the P.P.&B., but that didn't keep them from having a bit of fun. They called the P.P.&B. the "Pickles, Pork & Beans" and the L.&H. was dubbed the "Late & Hungry".

Nicknames were in the best practice in those days, perhaps pointing up as well as anything else the amiable regard which people along the rights-of-way held for "their" railroad. A prime example is the long-defunct Rockaway Valley Railroad, whose followers appropriately called it the "Rockabye Baby" in left-handed tribute to a railroad which was a magnificent failure from the start.

Born in the Blizzard of 1888, weaned on peaches and dead at an early age because of it poor connections, the "Baby" was as long on laughing stock as it was short on rolling stock. It meandered over a poorly built right-of-way between Whitehouse and Morristown, making a junction with the Jersey Central at Whitehouse but ending a mile short of much-needed Lackawanna and Morristown & Erie connections at Morristown.

The Rockaway Valley scarcely was begun before circumstances dictated that it would fail. In 1895 the splendid Hunterdon County peach orchards were ruined by the San Jose scale, killing the railroad's original raison d'etre. Yet it struggled along, serving the farmers but losing hundreds of thousands of dollars (in the days when those sums meant something). Finally the "Baby" died in 1913, for there just wasn't enough local traffic to make ends meet.

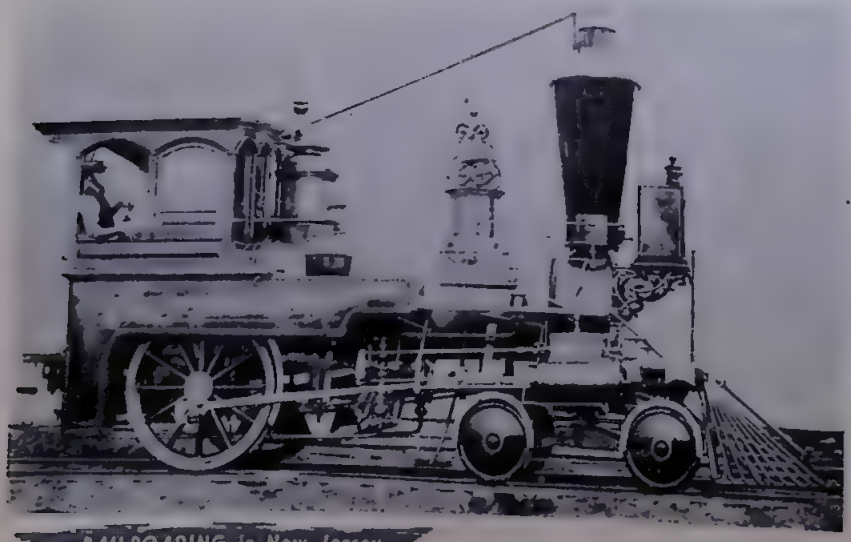
Ironically, the last owner of the railroad ripped up the rails and sold them for scrap during World War I. He netted more than $100,000—which made him the only person ever to make money from the line!

Contemporaries of the "Rockabye Baby" were the Raritan River, the Morristown & Erie and the Rahway Valley, all started in the waning years of the 19th Century. All survived as "rugged independents" to become solid money makers.

Like the "Rockabye Baby", the Raritan River was organized in the blizzard year of '88, but there the resemblance ended. Reaching out in the heavily-industrial area surrounding the Amboys, the Raritan River had built an 11.9-mile railroad from South Amboy to New Brunswick by 1890. Quickly it extended branches out into towns just off the main line.

At first the Raritan River did a good passenger business, with 25 per cent of its revenues coming from that source. Competing trolley lines took passengers away steadily, however, and eventually passenger business dropped to the point where in 1938 it was estimated that it cost the railroad $18.76 a day just to keep passenger business operating. That convinced authorities that passenger service should be

Engine No. 4, photographed along Raritan River Railroad's right-of-way in 1898.



"Rockabye Baby's" engine, the "Rachel," and a combination coach-baggage car stopped in Pottersville in 1893.

abandoned. Thus, the Raritan River was left free to develop the thriving freight business it now boasts.

While passenger business lasted, however, it was merry. Like the time in 1914 when a Raritan River train pulled into Milltown. The conductor looked back and noticed two coaches were missing.

"My, my," he clucked. "Two coaches missing. Well, we'll go back for them.

"Oh no you won't," warned passengers on the still-attached coach. "We're late now. Supper's waiting."

So the train continued, dropped its customers at South River and then backed all the way back to New Brunswick to pick up the wayward coaches. It was reported that passengers aboard the stranded cars scarcely knew that service was different from normal. They were used to long waits.

Whippany paper mills led to the building of the Whippany River Railroad from Morristown to Whippany in 1895. The line was extended to Essex Falls and a junction with the Erie in 1903, when it became the Morristown & Erie. In all its 55 years of existence the little 11-mile line has never been in the red. Today it has no bonded indebtedness and pays dividends on its stock.

Morristown & Erie's passenger problems can be cited as similar to those which faced any of the shorter lines. Initially, such traffic was good, because there was no other reasonably fast way to get to town. As many as seven passenger trains made daily round trips. Soon after the 1903 connection with the Erie, through commuter trains were run between Morristown & Jersey City over the Morristown & Erie (and the Green-

Typically rural is this shot of a train on the High Bridge Branch of the Jersey Central, taken about 1910.

Horse-drawn carriage and wagon waiting for passengers and freight at the Rockaway Valley Railroad terminus at Watnong Station, about a mile from Morristown.

wood Lake Division of the Erie Railroad from Essex Fells) to give the Lackawanna ambitious but ineffective competition. The automobile eventually cut passenger receipts down drastically, although as recently as 1920 the road carried 150,000 passengers in one year.

At first Morristown & Erie passenger cars were hauled by a little "peanut roaster", Engine No. 2—and the train crew abided by a strict rule not to take on or discharge passengers anywhere but at a station or a crossroad. A crossroad was "anything from a cowpath up"—and since the train often crept along at one mile per hour, the saying grew that "anyone who couldn't get on anywhere along the route just didn't want to ride."

The Rahway Valley hasn't always been a money-maker, but it has earned dividends since 1932 and gives every evidence of continuing to earn good money for its investors. The little 11-mile line was started in 1897 as the New York & New Orange Railroad as a four-mile link between New Orange (Now Kenilworth) and the Lehigh Valley and Jersey Central tracks at Aldene. An extension northwest to Summit on the Lackawanna was provided for in the charter but lack of funds stopped further building.

Along came Louis Keller in 1905 to perk up the railroad. Most oldtimers say Keller went into the railroad business because he wanted to give himself and his golfing friends easy access to Baltusrol Golf Club near Summit. At any rate, Keller, publisher of the "Social Register", pushed the line past the golf club to a point near the Lackawanna. Soon after the name of the railroad was changed to Rahway Valley. Actual permanent connection with the Lackawanna at Summit was denied by the Lackawanna until 1931—the year before dividends started, significantly enough.

Some of New Jersey's short lines had one unusual spurt of business

Engine No. 973 stopped in Tenafly on the Northern Railroad, which has run through Bergen County since 1858.

Remains of the Ogden Mine Railroad's tracks before they were ripped up for World War II scrap iron drive.

30 to 40 years ago, particularly the Rahway Valley and the Raritan River, when movie companies used the lines to film train wrecks for the serial thrillers.

Many still remember a day in 1914 when 2,500 persons gathered to watch an old Raritan River locomotive and two passenger cars race across a special trestle at Dutch Neck near Parlin. While Pearl White, Johnny Hines and Antonio Moreno called forth the violent screen emotions of silent movie days, the crowd waited for the train to near the center of the trestle. Suddenly dynamite blew the trestle to bits and the train plunged into the water, the victim of a dastardly screen villain. That was a hardy generation; nowadays model trains and painted scenery are generally used for such shots.

Probably even more film was expended on the Rahway Valley. For months the line was turned into a Wild West route, with appropriate shooting and stomping up and down the road. The climax came one day when the film folk were mixing film chemicals in a shack near Kenilworth. They mixed neither wisely nor well and the mixture exploded. Four actors went to the hospital, every window was smashed in the Kenilworth station and movie-making ended forever on the Rahway Valley—much to the regret of all railroad hands, who had loved the extra dollar a day and all the beer they could drink.

So it went on the little lines. They reached out and they turned forestland and pastureland into thriving villages, all the while knowing and sometimes hoping that larger systems might gobble them up. The larger lines gobbled smaller ones—such as the Bel-Del, the Sussex, the Newark & Bloomfield, the Northern and the New Jersey & New York, to mention a few.

Some prospered—such as the Ogden Mine Railroad—as long as the specific reason for their being held out. Then they flopped resoundingly. Others, such as the poor "Rockabye Baby", were doomed from the start.

Today, however, the Lehigh & Hudson River, the Lehigh & New England, the Raritan River, the Morristown and Erie and the Rahway Valley are typical of the lines which hold fast as "rugged individualists"—the little fellows who still hold their names and their pride (although in the background the big fellows may have a word or two to say through their stockholdings and the fact that they furnish the needed link to far-off markets).

The little fellows have always fascinated the home folks and rail enthusiasts. Perhaps that's because in them is found local pride, friendliness and the romance of railroad struggle and success—a throwback to the days when railroad men wooed business with keen personal service and battled adversity with muscle and might rather than with courtroom technique and legislative lobbyists.

Wreckage of five Morris & Essex engines after derailment near Musky Bridge while battling the Blizzard of '88.

The Blizzard of '88

Think Things Were Tough in 'Big Snow' of '47? Here's What Jersey Commuters of 63 Years Ago Went Through

THOSE whose convictions permitted the reading of Sunday newspapers on March 11, 1888, took comfort from the weatherman's guess that the miserable, murky Sabbath weather would give way to "clearing and colder" on Monday.

It didn't seem to add up at Sunday evening service time, when the drizzling rain turned to snow. Still, the weatherman, with all those maps and gadgets and experience certainly knew more than Uncle Henry—no matter if his trick knee "felt like snow."

Monday morning the weatherman was in hiding—perhaps buried under one of the drifts creeping up over the first floor windows of homes throughout the state.

Uncle Henry was right. It was snowing. It was, in fact, snowing the Blizzard of '88.

Jersey train riders refused to believe the snow could amount to much, this late in March. They shook down the stoves in the parlors on Monday morning, turned up their oil lamps and got dressed to go into the city as usual.

After all, if they didn't there wouldn't be any business in New York.

No reason to worry, Mother, the good old Erie (or Jersey Central or Pennsylvania or Lackawanna) will be running. Nothing stops the Lehigh Valley. The Susquehanna always gets through . . .

Still, there was something disquieting about the fact that no train whistles could be heard as they plodded through the deepening snow to the depot.

Probably that blamed howling wind drowned out the whistles . . .

Half frozen, the early arrivers greeted the latecomers for the first train. The latecomers greeted the early arrivers for the next train. And so on—until the throngs overflowed the station walls and hundreds stood under unwalled sheds, "as unprotected as if they had stood in the drifts beyond."

. . . But the trains came not.

Businessmen fretted and fumed at the railroads. Cashiers "with fractions of safe combinations locked in their heads" were apprehensive. New York safes would stay closed if they didn't arrive.

Commuters on the Lackawanna expressed themselves bitterly: "I'll bet if we could get into Newark The Pennsylvania would get us there." Commuters on the Erie were sure the Lackawanna was running. Commuters on the Pennsylvania were certain the Jersey Central was having no such foolish trouble.

All night long, however, the railroads had been accepting the awful truth that this was a blizzard, but every one of them was completely unprepared to cope with the force of the storm. Some even neglected to take the normal precaution of running trains up and down the line to keep the tracks clear.

At first the Jersey Central had slightly better going than its contempories; the snows hadn't drifted over the plains south of the Watchung Mountains where the Central ran. On Monday morning two Central trains fought their way to Jersey City. One arrived before daybreak; the other reached the ferry slip at 9:30 A.M.

The 9:30 A.M. train ride was a frightful experience.

"The train was crowded to its utmost holding," said a New York newspaper. "Snow and sleet came through the smallest crevices. It was not more comfortable than a refrigerator." The commuters trooped aboard a ferryboat in Jersey City to undertake a half-hour ride about which many of them were to have nightmares for years.

Heavy seas slapped against the ferry slips and the northeast gale made it difficult to get the ferry into the river. Nevertheless the ferry got underway for New York.

Every one of the next 30 minutes seemed like an hour aboard the overloaded ferry, "black with people."

Out in midstream the captain had the sickening knowledge that one false move would overturn his boat. The passengers felt cold fear as the minutes dragged by. Many prayed silently.

Brilliantly, however, the captain nosed the craft through the ice floes and gradually eased it into the New York slip. As the front of the big ferry thudded into place lusty cheers for the captain swept over the docks.

By midmorning of Monday, March 12, there was no longer any question that this was a blizzard—the worst in the memory of then living man—and the snow was still falling.

Trains were stalled on railroad tracks throughout New Jersey. Out in the Meadows the Chicago Limited had come to a stop. Several locomotives which had tried to blast their way through the deep drifts were derailed near Bergen Cut. A dozen trains were lined up on Lackawanna tracks in the Oranges. Two Montclair trains were stalled at Roseville.

The west-bound track of the Pennsylvania was open through Bergen Cut and the railroad debated the feasibility of sending trains in both directions over the tracks.

Several ladies got off the train in Newark when they heard about running trains both ways on a single track—with telegraph wires down. "We'll stay in Newark," they said, in chorus.

Commuters jammed Pennsylvania's Newark station. Some showed their anger. "I must get to New York," a big red-faced man kept shouting. "Monday's the big day! I'll give $500 to get to New York!"

Track Superintendent Smith burst into the station.

"Another train for New York in 10 minutes," he yelled. "We can take 100 passengers!"

The red-faced business man led the rush for the five cars. He got through to New York, too, even though the train "writhed and snorted like a giant through the drifts."

A man from Rahway who missed the train laughed and went across the street to a saloon. Dozens of others followed, on the theory that if they had to stay in Newark they might as well take reasonable precautions against freezing to death.

At noon Monday three Lackawanna trains from New York forced their way past Brick Church, bringing the news that the sole Hoboken-bound train to go through all night was stuck in the Meadows.

Minutes later those three trains themselves were stuck between Brick Church and Orange, the 1,500 passengers on them "as hopelessly imprisoned as those on the Meadows." The last steam of the locomotive was used to whistle for aid. There was silence. Passengers waited, then moved away by ones and twos along paths cut through the snow to Orange streets.

Most passengers on snowbound trains resigned themselves to waiting in the relatively warm cars wherever they might be. Residents along the way gave some of them temporary shelter; buckets of warm soup were brought to the trains. Extra blankets were provided. Roseville Athletic Club opened its doors to passengers on stalled Montclair trains. Generally, the treatment was excellent, although some charges were made that an outrageous 25 cents was being extorted for a sandwich in Orange.

Out in the Meadows the 31 passengers aboard the crippled Chicago Limited decided to make a night of it. Already they knew a $5 refund was waiting them on their tickets, bought with the guarantee that if the train was an hour late getting to Chicago they would get back the premium they paid to ride the crack express.

"We have $100 worth of liquor, cigars and food aboard," the porter announced on the Limited, thus removing all temptation to venture into the blizzard.

Local trains in the Meadows were

"A Beleaguered City" was the title of this March 15, 1888, newspaper drawing which showed trains and ferries completely immobilized by the unexpected snow.

Three locomotives failed to budge this train which stopped near Newark and blocked tracks until shoveled out.

less well prepared. One group of passengers on a train stuck just beyond Harrison took up a purse and volunteers struggled into town and back with welcome groceries.

Jersey City terminals were a mad-house, crowded with people—ranging from those who had insisted on coming east from Newark and now insisted on getting back, to scores on their way to Florida.

One Jersey City station was host to two blizzard-checked theater companies, the cast of "Woman Hater" due to open in Williamsport on Monday night and the cast of "Samuel Posen," booked for Philadelphia on Tuesday.

Considerably vexed, too, in another station in Jersey City was the group of glamorous lovelies of Little Clay's revue, "Dizzy Blondes," who had set out Monday morning for Scranton in all good faith.

All ladies, including Miss Clay's girls, were nobly treated by the railroads. The Erie moved its sleeping cars into its Jersey City terminal and made up berths for the ladies. Distaff passengers were always fed first. Male passengers on local trains stalled in drifts throughout the state gallantly stayed out of cars set aside for women.

Tuesday at noon the snow stopped. The railroads could add up exactly what they had to do.

The job was two-fold. First they had to clear drifts from every cut in the state. Secondly, they had to get the more than 50 derailed locomotives back on the tracks. An estimated force of more than 15,000 laborers set to work to do the job by hand, aided in the deepest drifts by engines running in tandem.

No Lackawanna trains ran on Tuesday. Many of the eager bankers found other transportation to Newark, only to find the trains there just as snowbound.

One old gentleman from Orange drew up in front of the Market Street station aboard a child's sled hooked behind a large roan horse. He shook the snow off his clothes, brushed off his beard and laughed with the crowd.

"No trains, sir," someone called.

"No matter," the Orange man replied. "I got here just the same!" He went across the street to the

Three engines were needed to pull this train into Orange on March 14, when service was restored on the Lackawanna.

These men digging out the snowbound "Summit Accommodation" near Orange were among those pressed into service.

saloon to join the man from Rahway who had gone there the day before.

A Lehigh Valley train got into Newark Tuesday afternoon and its brakeman boasted that his railroad's powerful engines could break through the drifts at Bergen Hill, if given the chance. Instead, the Lehigh locomotive was detached and with three others went out to help the Chicago Limited. They couldn't budge it.

Bitter cold—close to the zero mark—dropped in on the heels of the storm to complicate the troubles. Engines which had been kept steaming to keep from freezing ran out of water. Other locomotives froze up tightly. Livestock in open box cars froze to death.

Above all, the railroads found that in many places drifts had become solid ice. Jersey Central reported that hundreds of laborers chipped with iron pickaxes at such a formation in Bergen Cut.

Tuesday at 5:20 P.M. a Pennsylvania train partially broke the blockade by running from Jersey City to Newark. It returned at 8:50, then ran every 45 minutes all night. The next day the Chicago Limited was pried loose and taken back to Jersey City for restocking—its liquor and food supply completely gone.

While youngsters gloried in the big snow, the Pennsylvania Railroad crewmen aboard locomotives stalled near Newark sought ways to get moving again.

Irregular service was restored on most lines by Wednesday noon, although Jersey Central didn't run any trains to Plainfield until Wednesday night and Lackawanna service wasn't completely restored until Thursday. The Pennsylvania tracks were open as far as New Brunswick on Wednesday, but it took another full day to bite through a four-mile-long drift between New Brunswick and Trenton.

The Erie had fair service to Paterson by Wednesday and on Friday proudly announced that it was "completely out from under the drifts" when its Chicago Express steamed into Jersey City four days late.

Thursday the Chicago Limited

One of Paterson's rotary snow plows in action on a Western railroad, "where men knew how to fight a big snow."

went west, with the 31 storm veterans pointing out to awed newcomers where they had been stuck for three days. The Florida train also roared cross state on Thursday—only 45 minutes (and four days) late.

The Erie had a bad fright on Thursday when a rock mass weighing 100 tons fell from the roof of its Bergen Tunnel, tying up the line. Workmen pried another great mass loose from the roof before clearing the tracks.

The roads clear, the railroads turned to their stuck engines. Those out of water used melted snow in many instances to fill the boilers. Others called on fire departments.

Frozen locomotives were a somewhat different matter, but generally they hissed into action after kerosene-soaked waste was lighted under them to melt the ice.

On Friday railroad traffic was normal and the railroads began to add up the cost. Passengers began sifting in their minds the things they would tell generation after generation for the next 60 years. Newspapers began to hear from the outlying precincts.

Mingled with the reminiscing there were sad stories.

The saddest came from Hackettown, where Engineer Charles Baker was crushed to death under his locomotive, the "Montclair." Baker's engine was one of five hooked together to fight drifts in the western part of the state where the engine fleet met with disaster near Musky Bridge.

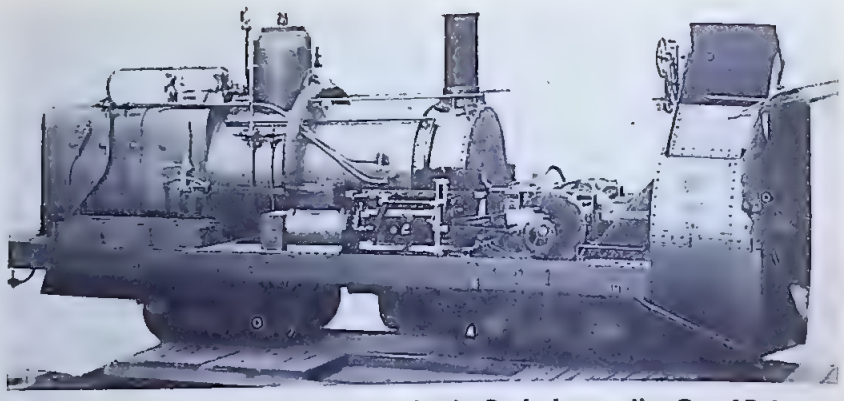
Two engineers and a fireman were killed in a derailment at Flemington. A Pennsylvania fireman received a fractured skull when an engine left the track in Jersey City and rammed into a telegraph pole during the storm.

A week after the storm the newspapers asked why the railroads didn't own modern rotary snowplows. One paper reported a Westerner snorting:

"You folks don't know snow. You're not ready like us. Our railroads have big rotary snowplows."

The newspaper pointed out that of course the Western railroads had snowplows—made in Paterson, then the center of the world's rotary snow plow industry.

"One rotary snowplow of the Paterson make would have saved the railroads the cost of 20," the paper said. It pointed out that the storm had cost the railroads untold hundreds of thousands of dollars. "The blizzard would have been a splendid opportunity to exhibit and advertise the merits of the plow," the editor concluded.



One of the early rotary snowplows made by the Cooke Locomotive Co. of Paterson.

There wasn't a rotary machine to be had, however. Every Paterson plow had been delivered to Western railroads before Winter set in.

Eastern railroad men said they hadn't believed it could snow that hard.

A photographer of 1888 snapped this scene as Orange residents came to the aid of passengers who were marooned aboard a snowbound Lackawanna R. R. train.

An 1888 newspaper artist drew this picture of the great storm showing the terrific battle on the railroads two days after the heavy snow had stopped.

The massive concrete bridge thrown across the Delaware River to link the Cut-Off with the Lackawanna's main line tracks was the last stage in history-making construction which the railroad finished in December, 1911.

Conquering the Terrain

Engineering World Marveled at Ability of Jersey Railroads to Build in a Straight Line by Leveling Mountains and Tunneling Through Rock and Riverbed

"AH, THOSE American railroad builders! They come to a great river; they go under it. They come to a mountain; they go through it. They want to get from place to place; they build straight!"

Engineers throughout the world looked on in awed admiration as American railroads in 1900 faced up to the hard fact that the time had come to pour millions of dollars into the fight for passenger and freight traffic.

No matter when or where the gaze of foreign engineers strayed, their attention always came back to New Jersey. Back in the 1850s they had given respectful attention to the long tunnels John I. Blair had carved under Scott's Mountain in Warren County. At the same time they were impressed by the tunnel the Erie Railroad cut through Bergen Hill just west of Jersey City.

Yes, when the mountains got in the way the railroads went through them . . .

The Lehigh Valley burrowed through Musconetcong Mountain and the Lackawanna pierced Bergen Hill west of Hoboken in the 1870s. Less than a decade later the engineers were taking another whack at Bergen Hill, this time at Weehawken, where the upstart New York, West Shore & Buffalo Railway Co. was getting ready to challenge the mighty New York Central.

The West Shore got close scrutiny, because that first direct challenge to the mighty New York Central provided the key to much of the feverish engineering work between 1900 and 1910.

If some way wasn't found to battle the Central, there weren't going to be many crumbs for the other railroads to pick up from the rapidly expanding Western trade.

The Central had a station near its present location in New York, which was considered "a bit far out of the city to be practical." Central could advertise:

"Chicago to New York—DIRECT!"

Other railroads through New Jersey were worried. All of them terminated in Hoboken or Jersey City and no matter how rail magnates glossed over the fact, passengers could see for themselves that the Hudson River was between them and New York.

It was bad enough on clear mornings, but when fog reduced the Hudson River to an eerily dangerous travelway there were lots of Western men aboard ferryboats who made up their minds to go back to Chicago and tell the folks to ride the New York Central.

Thus, every railroad stockholder in New Jersey cheered (inwardly, of course, in these polite 80s) when the West Shore knocked the chip off Central's shoulder.

Through the flinty rock of Bergen Hill at Weehawken the West Shore sliced its 4,225-foot tunnel in 1881. It cut over the north portion of the Meadows and sped through pleasant Bergen County terrain to Orangeburgh, N. Y.

Then the trouble started.

The mountains at Haverstraw? Through it men! The mountain at West Point! Through it men—directly under the parade ground of the U. S. Military Academy!

Up the stony cliffside on the west bank of the Hudson the West Shore fought its way. Ropes draped over the cliffs held men in place while they cut starting points for construction. More than 20,000 workmen fought the terrain at one time.

Late in 1883 West Shore trains rolled into Buffalo via a conglomeration of amalgamated short lines. The stockholders set out to get some of their $50,000,000 back.

Down came Central's rates. West Shore met the slash. Fares between Buffalo and New York dropped to a cent a mile. For $2 a man could buy a round trip ticket between Syracuse and New York.

Everybody loved the battle but the railroads.

Central lost many more millions than the West Shore, but there was a vital difference—West Shore lost money it never had in the first place. Such matters led only to bankruptcy. On June 9, 1884, receivers were appointed and a year later West Shore passed into the control of the New York Central.

Now the lines terminating in Hoboken and Jersey City faced the fact that they were at a greater disadvantage than before. Something had to be done about that Hudson River.

Something, for example, like the tunnel that D. C. Haskins tried to dig . . .

Haskins picked up some slim capital in the mid-1870s and began a tunnel under river to link Jersey City with Washington Square in New York.

Danger lurked in every foot of the tunnel. Men entered air locks to cut at the soft soil. Pneumatic pressure was supposed to hold back the earth, but the mud was too soft to hold the air. Finally, on July 21, 1880, the tunnel gave way and 20 men were killed.

Woodcut of the 1870's shows men working in the tunnel which D. C. Haskins dreamed of cutting under the Hudson.

Newspaper readers read of the tragedy with horror and shed many a tear for heroic Pete Woodland, who died under the merciless Hudson.

Pete saw the first tiny leak in the earth. He shouted to the men and raced to the air lock. Eight men rushed out as Woodland held open the door. Suddenly the tiny leak gave way to a gush of water, endangering those in the air lock as well as those in the tunnel.

Woodland, who could have been the first out, instead slammed the door shut. Eight living men inside the air lock heard the river waters roar down on Pete and 19 fellow workers.

Haskins failed financially in 1882, after he built 1,800 feet of tunnel. The company was reorganized in 1890, built the tunnel another 1,800 feet, and went into bankruptcy again.

George B. Roberts, president of the Pennsylvania, set out to solve the problem in other ways. First he encouraged Gustave Lindenthal, eminent engineer, in his 1884 plan for a high level bridge over the Hudson.

Nothing doing, said the War Department—not with those piers in the harbor.

Lindenthal was back in 1890 with plans for a greater bridge over the river at 59th street, plus an Act of Congress permitting its building. This was a bridge to excite wonder. It was to have three decks,

Suspension bridges like this one set up near Blairstown in 1909 were among the chief wonders of the Cut-Off.

Bergen Hill entrance of the Pennsylvania Railroad tunnel, leading to New York, after its completion in 1910.

carrying 14 tracks and roadways over an arch 3,000 feet long! Its cost of $100,000,000 was unprecidented.

The Pennsylvania couldn't swing the $100,000,000 alone, asked the other railroads to co-operate.

"What," said the other railroads, "Spend that kind of money? Let 'em ride ferries!"

Besides, 59th street was far above where the city would ever spread, they said.

The Pennsylvania discussed other alternatives. Leave the main line at Rahway, cross Staten Island and tunnel under the Narrows to Brooklyn, bypassing Newark. Tunnel under the Hudson from Jersey City to Maiden Lane in New York. Carry passenger cars on barges.

There didn't seem to be any answer.

Meanwhile, in 1900, along came William Gibbs McAdoo to grasp "that dead thing, laid away in the cemetery of unworkable ideas"—the tunnel started by Haskins in 1879.

A young struggling lawyer, McAdoo's enthusiasm prompted others to lend capital up to $4,000,000. Under the river in 1902 again went workmen to ram the tunnel through the 2,000 yards needed to complete it. Construction moved ahead 24 feet a day in finishing the first tunnel. Later, when a second tunnel was begun, the speed was advanced to 72 feet every day.

The first of the tunnels from Hoboken to Sixth avenue and 19th street was finished February 25, 1908. President Theodore Roosevelt was on hand to push the button which got Hudson & Manhattan Railroad service underway.

The H.&M. lines were extended to Jersey City and in November, 1911, the tubes reached Newark—

Hainesburg Viaduct under construction. When completed, the 1,100 foot long span set a new world's record for the use of concrete in a single structure.

inviting the commuter to a quick no-change trip to the city.

Alexander Johnston Cassatt, Pennsylvania Railroad president from 1899 to 1906, encouraged by McAdoo's H.&M. operation, also decided in 1902 that the time had come to carry the Pennsy's tracks straight into the heart of the city through a Hudson River tunnel.

The Pennsylvania project actually started just east of Newark, where a new double-track line crossed the Meadows on a high hill, dove under Bergen Hill to New York City and then continued under the East River to connect with the Pennsylvania-owned Long Island Railroad.

It was a plan with great vision, and its successful completion in 1910 gave the Pennsylvania a hold on long-haul passenger traffic which no other Jersey railroad could match—unless, of course, it also crossed over or under the Hudson to deposit passengers in the heart of the city without change.

Behind in the race for through-passenger traffic, other New Jersey railroads set about getting their lines in shape to fight for the lucrative freight traffic. They filled here, straightened out curves there. They eliminated grade crossings, they revitalized their roadbeds.

Particularly important, of course, were the elevations of the tracks along the Pennsylvania, Jersey Central and Lackawanna railroads. The Lackawanna, for example, elevated its tracks through Newark and depressed them through Summit in the first five years of the 20th Century, then set about elevating its entire line as far as Convent as quickly as possible. It showed ingenuity, too, in such things as digging a cut between Madison and Chatham and then using the excavated dirt to elevate the tracks through the Oranges.

All of this was important, but perhaps no New Jersey railroad engineering feat ever matched the Lackawanna's Cut-Off from Lake Hopatcong to Delaware Water Gap.

Started in August, 1908, and finished in December, 1911, the 28-mile Cut-Off was one of the all-time great engineering feats. Every mile of the tremendous undertaking was carefully studied by engineers and diplomats from all over the world. Magazine and newspaper writers correctly unleashed their superlatives—"greatest," "biggest," "longest" in the world.

There had never been anything like the Cut-Off.

The Lackawanna had long known something had to be done about the line from Port Morris to Washington. In that stretch a train swung around 57 curves, some of them extremely sharp. Grades were steep; it was expensive to haul heavy coal cars over them. The route was long —40 miles from Delaware Water Gap to Port Morris.

It was going to cost millions of dollars anyway, why not do it in the grand manner, Lackawanna President Truesdale argued? Why not cut straight across country?

Do it, said the Lackawanna directors. Build the Cut-Off.

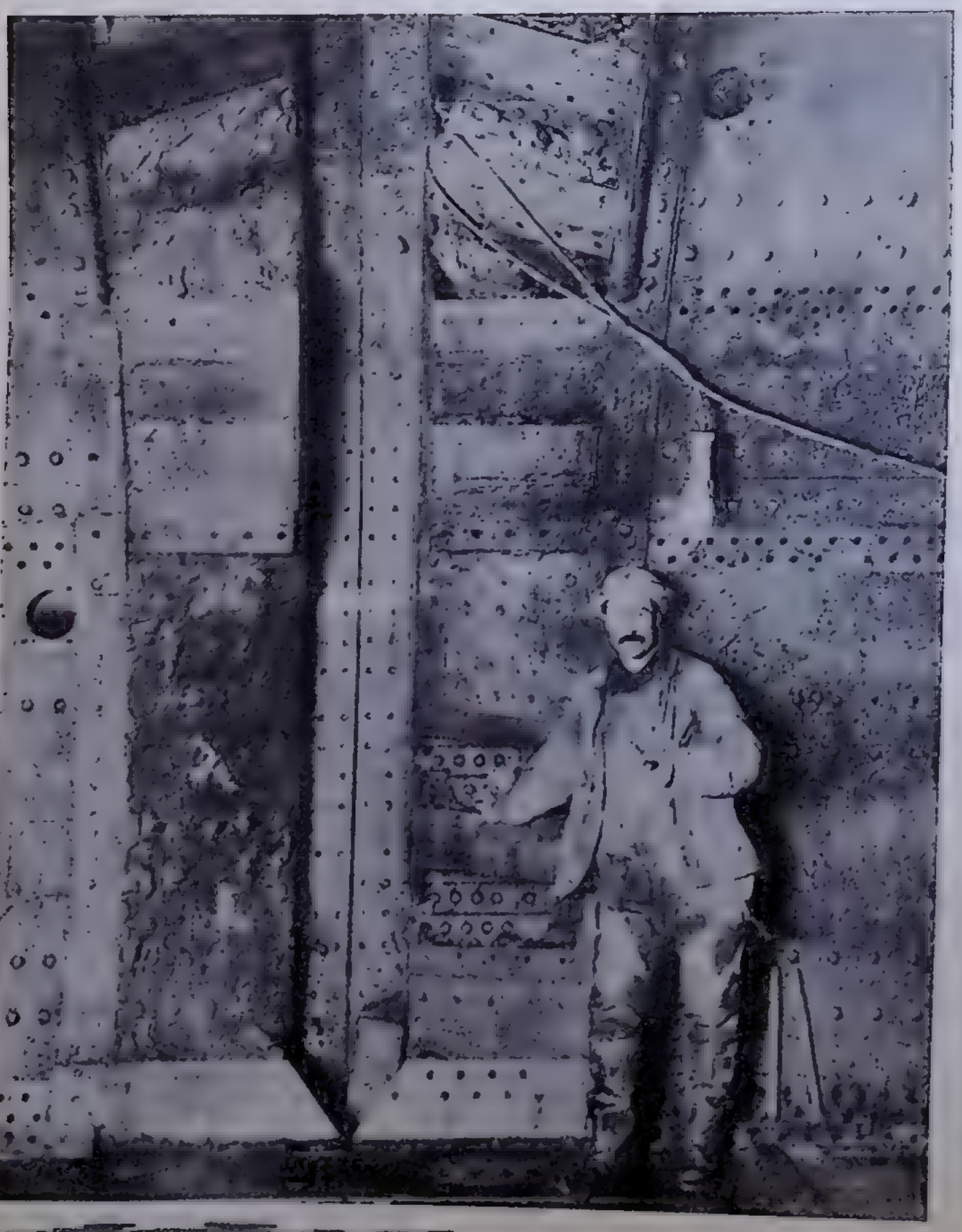
Three years and $10,000,000 later the Lackawanna took a corps of reporters and officials over the line. All were handed the statistics:

"Length: 28.45 miles . . . 20 minutes saved for passenger trains and one hour for freight trains . . . 57 cents saved per train mile . . . 15 curves versus 57 on the old line . . . maximum grade less than half . . . tunnel length 1,000 feet as against 3,971 on the old line . . . 6,000,000 pounds of dynamite, 6,625,000 cubic yards of fill, 4,500,000 cubic yards of earth borrowed from surrounding farms!"

The story unfolded as the first inspection train swung onto the Cut-Off a quarter-mile west of Hopatcong Station northwest on the long western slope of the Walkill Mountains and across Lubber Run Valley on an embankment containing 1,100,000 cubic yards of fill.

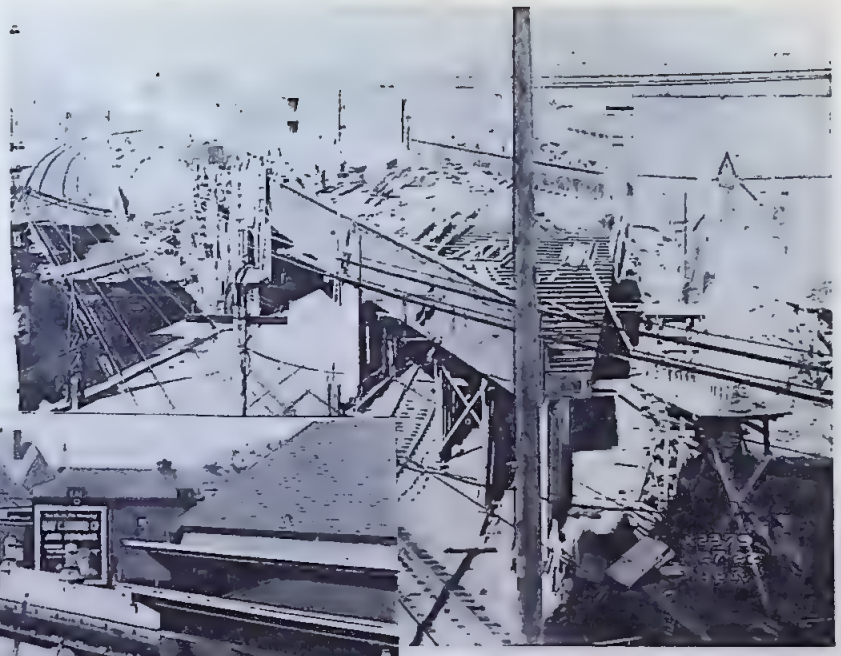
"Interesting thing about this whole job," a Lackawanna official

This picture was snapped a few minutes after workmen driving the Pennsylvania tunnel from both sides of the Hudson River met far under the river bed in 1909.



told the inspecting group. "We built the Cut-Off in seven sections, something radically new. We gave seven separate contracts. Some figured there would be trouble, but things couldn't have been more pleasant. Never a hitch. Never a minute's trouble."

At Andover the Cut-Off curved westward in a long gentle sweep and headed in an almost straight line for the Gap. High up over the beautiful West Jersey farmland rode the Lackawanna inspection special. All along the route farmers stopped their wagons on intersecting roads to wave—and to point up the fact that the Cut-Off rode over countless archways built to eliminate grade crossings.



These two pictures, taken from almost the identical spot, show work on the elevation of the Lackawanna Railroad tracks through East Orange in 1922. Note new track in the earlier picture, laid to carry trains at ground-level during construction. This elevation was part of the improvement carried on by the Lackawanna during the early years of the 20th Century. Eventually the line was elevated all the way from Hoboken to Convent Sta.

Every one on the train waited for a view of the tremendous Pequest Valley fill—unprecedented in massiveness for a single piece of work at a given point.

Fully three miles long, and rising from 75 to 110 feet over the floor of the valley, the Pequest fill contained 6,625,650 cubic yards of fill—then the largest railroad fill ever completed.

There was little doubt where the fill had come from. From any window it was easy to spot one of the "borrow pits" on the scattered 750 acres of farmland bought for fill. Dozens of little man-made lakes showed where the fill-takers had cut down below water level, as much as 20 feet from the surface.

"Wait until we get to Hainesburg," the Lackawanna guide promised. "We'll really show you something!"

His promise was kept.

Reporters, officials and engineers alike gasped at the magnificence of the long, graceful viaduct spanning the Lehigh & New England Railroad, the Paulins Kill River and the broad valley.

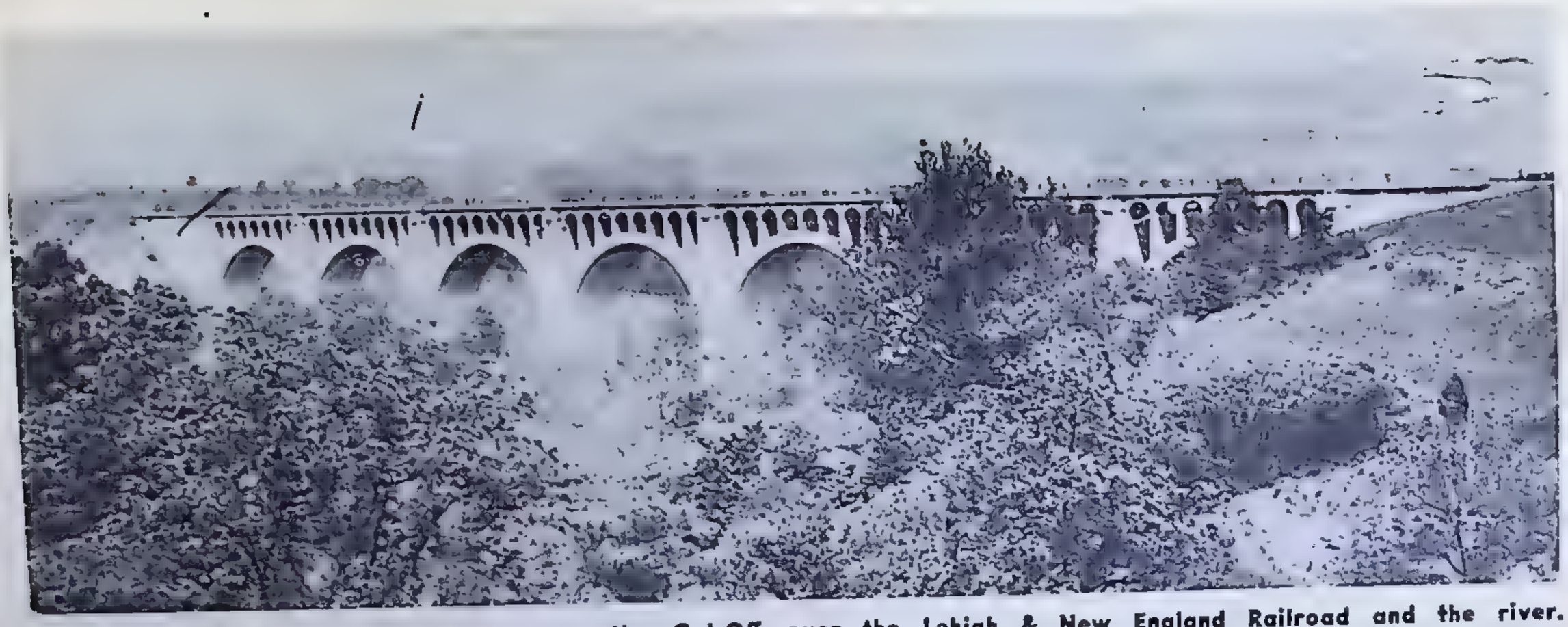
There was a "greatest" story in the Hainesburg viaduct, too—it set a new world's record for the use of concrete in a single structure. It was 1,100 feet long and 115 feet high, "a single monolithic mass."

Down in the villages beside the Cut-Off the people along the way had stories of their own to add to the statistics and visible wonders.

The true story of how a mountain top was literally blown off was the best. The contractor tunneled through the rocky summit and put 32,500 pounds of dynamite and Judson powder within. The entrance was hermetically sealed after a wire had been carried a half-mile away to an electric battery.

Guards cleared the countryside of man and beast. A spark shot through the wires. Farmers watching from woodlands two miles away declared the whole mountain disintegrated. Minutes later the settling dust revealed the mountain had disappeared into eternity.

Men and boys for miles around never tired of sneaking off from the fields to watch the spectacle of the "moving bridge" at Andover. To move fill where it was needed, the railroad built a suspension bridge out from a mountainside,



The Paulins Kill Viaduct, built to carry the Cut-Off over the Lehigh & New England Railroad and the river.

ran cars to the edge and dropped the fill. As the mounds of fill moved along, the suspension track also moved.

"Beats all," the boys told one another, "like a durned train running in thin air!"

Equally intriguing were temporary trestles built 40 feet high to carry fill over valleys in other places. The construction crews filled in the trestle, then built another 40-foot trestle on top of the fill and filled that in, too.

The Cut-Off ignored all in its path; even a few houses and barns disappeared under the fill.

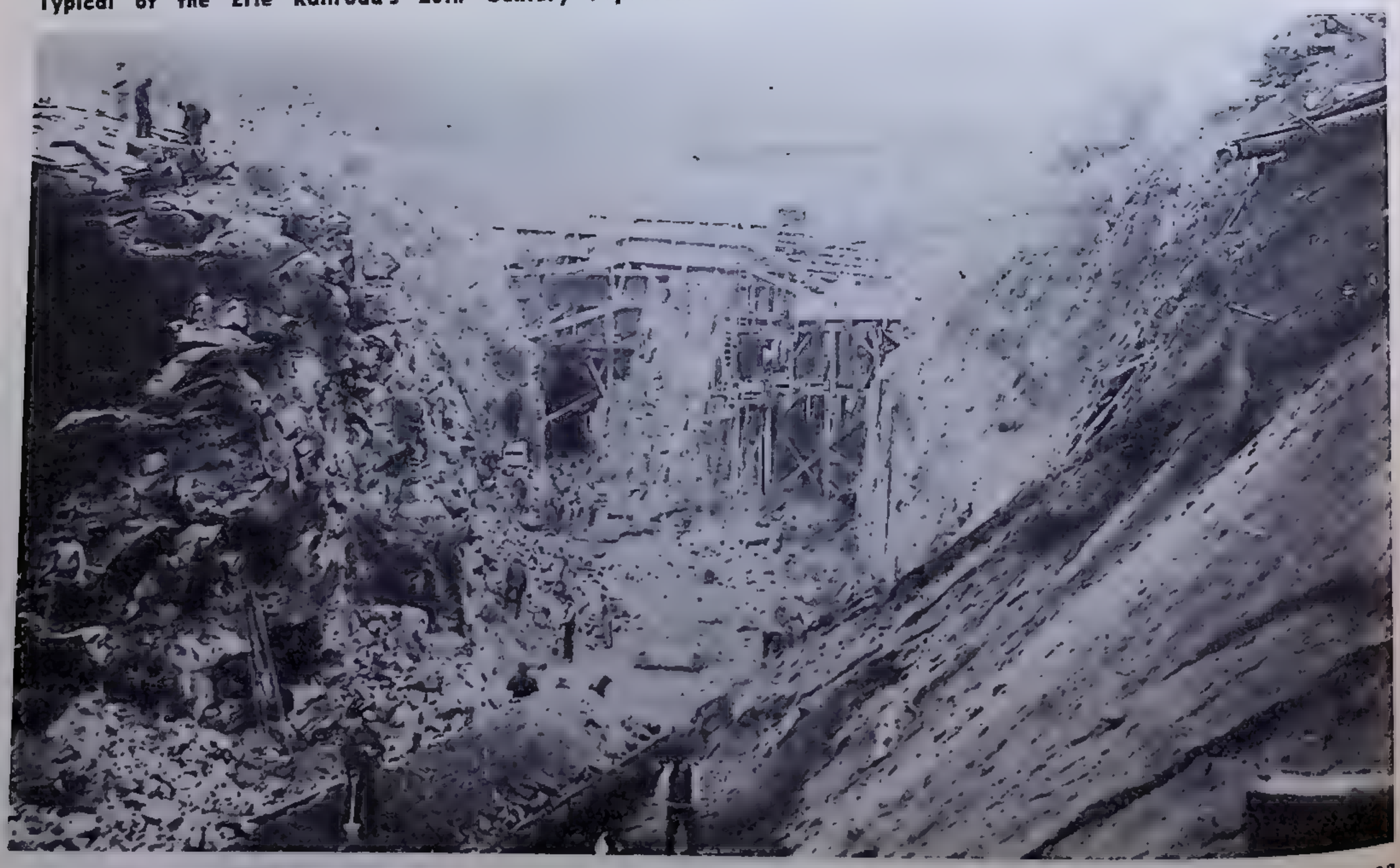
At Huntsville boys and girls had a temporary thrill. The Cut-Off was going to cover the school! Mounds of earth moved up to the very edge of the school in the Spring. The earth-movers went elsewhere until June graduation.

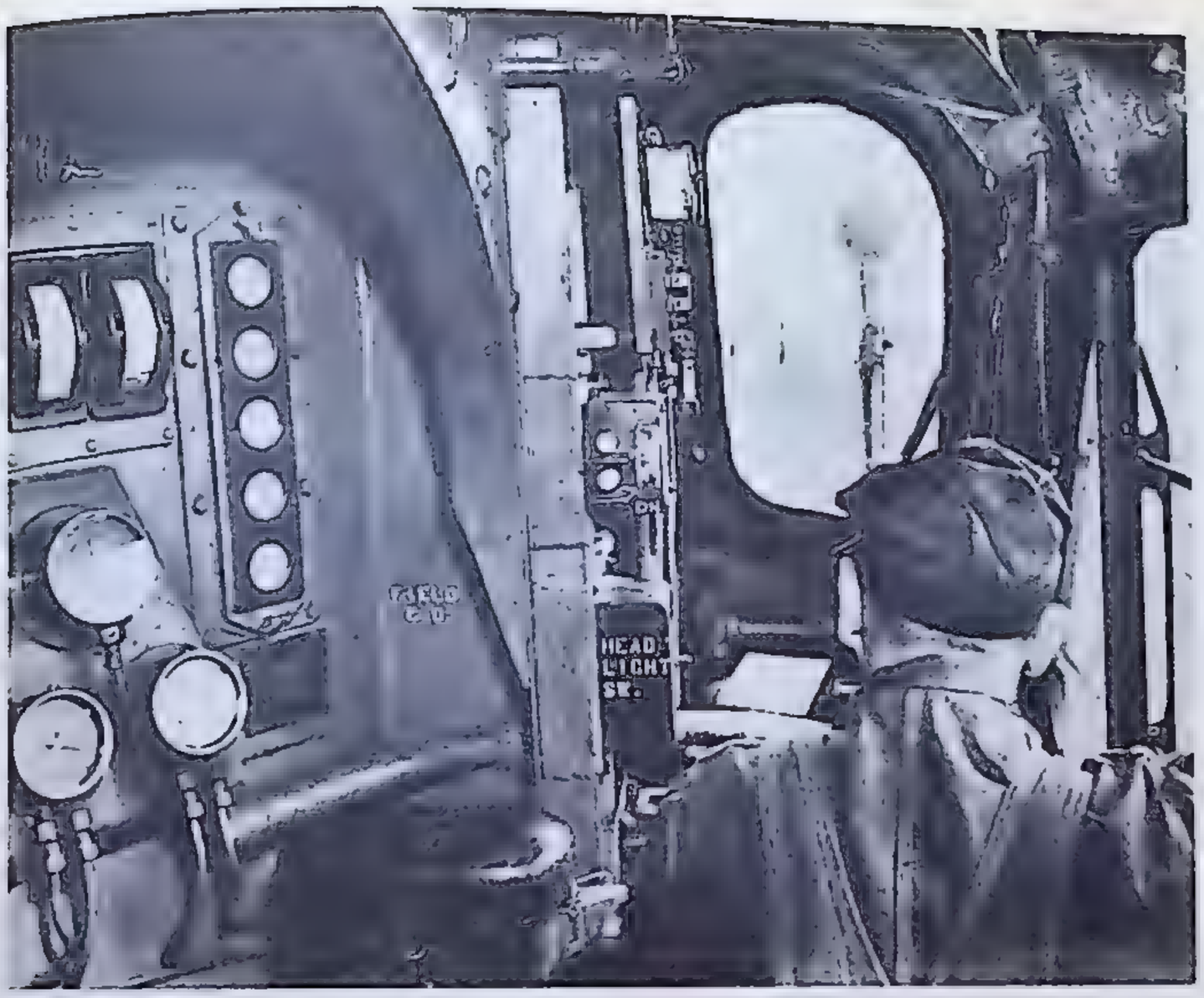
Then Huntsville literally buried its school.

Boys clambered on the school to tie a black crepe around their unlamented old building. A few mock words of mourning were said. Down tumbled the dirt from the Cut-Off above. In a few hours the school was decently buried—and not a tear was shed.

The schoolboys cheered mightily, then looked sadly across the street. The railroad was building a new Huntsville School—for September occupancy.

Typical of the Erie Railroad's 20th Century improvements was this new tunnel cut under rocky Bergen Hill.





All-weather device, shown as the five-place panel to left of the engineer, brings railside signals directly into Pennsylvania Railroad locomotive cab.

Safety Devices

The Railroads Were Willing to Try Anything That Would Insure Accident-free Operation but Human Element Still Remains Prime Factor.

NORTHERN RAILROAD OF NEW JERSEY officials sighed regretfully as they hauled the distinguished visiting signal engineer out of a snowbank beside the Northern's track on a crisp Winter morning in 1890. One look at the visitor's bleeding head convinced them that their automatic train stop was a dead number.

Sympathetic though they were, the Northern men couldn't help but wish he had kept his head down.

Minutes before there had been great enthusiasm as Northern's S. R. Harrington explained his device. It was simplicity at its best. A sash weight dangled from a semaphore arm as the arm dropped to denote danger ahead. If the train ran through the "stop" signal the sash weight struck a level atop the locomotive cab and applied the train's air brakes.

On the test run the visiting signal specialist took his work seriously. Deciding on a closer look, he scrambled up the coal in the tender as the locomotive sped toward the dangling weight.

At what history records as precisely the wrong moment, he raised his head. Sash weights being what they are and heads being what they are, the result was inevitable.

Revived, the signal expert said many things, the expurgated gist of which was that Harrington's device wouldn't do.

No, Harrington's device wouldn't do. For that matter, neither would any of the other of the scores of ideas of the day which sought an answer to railroading's ever-vexing problem—how to control a train when the human element fails.

Harrington was trying to advance the cause of railroad safety, as Ashbel Welch had done as early as 1863 on the Camden and Amboy Railroad when he installed the country's first "block" system on a stretch of track between New Brunswick and Trenton. Welch had discovered the still basic theory in train control—that space rather than time best governs train movement.

As Welch conceived it (and as it is today), a "block" is a designated space to which only one train is entitled. The block may vary anywhere from a few hundred feet in length to several miles, but once a train enters a block no other train is permitted to move into the occupied block except under specific instructions.

By the middle 1870's the basic components of modern safety systems were known. In 1872 a patent was issued for a battery-operated track circuit, to control signals automatically within a given block. At about the same time George Westinghouse was granted a patent for his air brake.

Still, railroads didn't immediately enjoy accident-free prosperity. For one thing, railroad stockholders didn't fall all over one another rushing to install safety devices. It was a recognized belief of the day that unless something was "productive" it wasn't necessary.

Secondly, and perhaps most important, there was human failure. Railroads have never found an answer for that one.

Even with the block system, rear end collisions continued. Dispatchers occasionally forgot to notify someone ahead and engineers occasionally ran through signals. Sometimes telegraph systems broke down and sometimes telegraph operators forgot messages.

There is, for example, the true story of the telegraph operator who received a message to set a stop signal at the beginning of a block. He promptly forgot it. As a train highballed past on the single track he suddenly remembered.

He checked his schedule with frantic fear. His most horrible thought was confirmed. Rushing in from the other end of the block was another train. Quickly he calculated—11 minutes until the inevitable collision on the single track.

The telegrapher spent the rest of his days in a madhouse, counting up to 11.

The closed track circuit took the responsibility out of human hands by electrically setting the signals. That didn't stop an occcasional engineer from ramming past a signal, however. Those were the days when men were men and often worked 'round the clock.

Men being men, sometimes one fell asleep at the throttle.

It didn't happen often, but such things didn't have to happen every day to stir railroad officials (especially with the public muttering unkind things in the background).

"Look," said railroad safety men. "We have the closed track circuit and we have the air brake. Let's marry them off and they should produce something to check any train which passes a 'stop' signal."

It was the attempt to bring off that marriage that enticed inventors like Harrington to the scene. He was just one of many—amateur and professional—working on the problem. By 1901 the automatic "tripper" stopping device was in use; in 1908 it was installed in the new tunnels of the Hudson & Manhattan Railroad.

One early signal device would have made engineer's nose responsible for safety.

The H. & M. still uses a "tripper" —the only railroad in the state to do so, for the very practical reason that snow and ice play havoc with the system in unprotected areas. Simply stated, the device works by having a mechanical arm strike a "tripper" on the train when a "stop" signal is passed. Air brakes are set and the train slams to a halt.

A resounding "klunk" was the reward of this curious Northern R. R. signal expert.

Word got about at the turn of the century that railroads were experimenting with automatic train control. The public was led to believe (by the inventors, generally) that such control was available but wasn't being installed because railroads were stingy.

Actually, however, it was recognized in engineering circles that such things as "trippers" would be dangerous on trains speeding at 60 or 70 miles per hour. If such a sudden stop didn't buckle and derail the train, passengers would be slammed around the cars.

Thus, when the Interstate Commerce Commission set up its Block Signal and Train Control Board in 1906, it was looking for something which would first warn an engineer if he had passed a stop signal, then take over if he failed to respond.

The board studied 1,146 plans through 1912, but recommended none of them. They were varied and ingenious, although most breath-taking was the suggestion of a man from the Midwest.

Nothing to it, wrote the Mid-Westerner. Put a skunk in a cage just ahead of the locomotive cab—facing forward, of course. Then, have a stick drop across the right-of-way when a signal says "stop."

The stick strikes the skunk's cage and nature takes it from there.

No engineer with a nose could fail to realize he had gone through a block signal!

That one is actually in the archives, along with the government's straight-faced reply that it was sorry, but no funds were available to test the plan—notable though it was.

Railroad safety gained impetus after World War I. By then railroads had learned that safety and economical operation go hand-in-hand. They had learned that installation of an automatic block system could more than pay for itself by permitting more rapid movement of passengers and freight. Fewer accidents did wonders for both public relations and reduced claims against the lines.

The ICC entered the picture again in 1922 with an order directing 94 railroads to install automatic train stoppers on specified short runs of track. Their hope was that the railroads would see the merits of the system themselves and extend the systems.

One of the metropolitan area railroads did—the New York Central. Even today it uses a system of electro-magnetic devices to control the train's air brakes. As long as the block signals are favorable, the train rolls unfettered. However, let a "stop" signal be ignored and a whistle gives the engineer 15 seconds to control the train. If he doesn't take over in that time the brakes are applied automatically for an emergency stop.

The Pennsylvania Railroad sought and found a different answer—the cab signal, whereby all railside signals are reproduced in the cabs on a panel in front of the engineer. Supplementing the visual signals is a bell or whistle which sounds automatically with each change of signal, and keeps sounding until the engineer shuts it off.

Hand test on rail locates exact position of flaw found by detector car.

Also intently checking the sound is the engineer's assistant. If the whistle continues more than six seconds he must investigate to determine why and follow the signal if the engineer can't.

It goes beyond that. Pennsylvania rules require that the engineer and his assistant verbally acknowledge to each other a change in signals.

When the cab signals were first tried in 1927 the ICC insisted that an automatic stopping actuator also be used, to apply the brakes at the end of six seconds. That rule was relaxed in 1932.

Cab signals reflect the condition of the road ahead in terms of the automatic block system. As soon as a train enters a block it sets a "stop" in the block immediately behind and a "caution" in the block behind that.

Determination of the length of a block is always based on the worst possible conditions, to insure plenty of space in which a train can be stopped. Accordingly, a signal permits full braking even if the rails are iced, the grade downhill, the train particularaly long and heavy or any other unusual condition. Naturally if a train can be stopped readily under the worst situations, it can be easily controlled in normal operation.

All railroad safety is based on any failure being "on the safe side." A power failure or rail break sets all block signals on "stop" automatically. Inside the cabs of electric and Diesel engines, unique "dead man" controls take over if the engineer is stricken.

The Erie's four-way radio-telephone system is effective in promoting railroad safety. It operates between engine and caboose, between passing trains and trackside stations and between stations along Erie's right-of-way.

One of the detector cars used to find rail defects by electronic means. Invented in 1927 by Elmer A. Sperry.

On electric engines the engineer must keep a pin in the throttle depressed at steady pressure. Even a momentary lapse of attention can set the brakes—and once the action starts it carries through. The same is true on Deisels, although the control is usually a foot pedal.

Slightly more than a month ago a Page One story in The News told of a "dead man" control bringing a crowded rush-hour Lackawanna Railroad train to a screeching halt just west of Bergen Tunnel when a 56-year-old engineer collapsed and died at the throttle.

Pennsylvania Railroad engineer and conductor check their watches before a run.

That business of "failing on the side of safety" applies to air brakes as well. It would have been simpler, perhaps, to have planned the system so that an increase of air pressure would apply the brakes. Instead, air pressure is kept applied at all times and brakes are set by releasing air pressure. Accordingly, even if the air should suddenly bleed from the system the result is application of brakes rather than an absence of them, as, for example when hydraulic fluid escapes from an automobile braking system.

Safety factors go far beyond signals and automatic train stops, of course. Every effort is made to minimize danger, if for no other reason than the simple economic fact that safety means money.

Coming into the story as a regulating agency is the Public Utilities Commission, whose regular inspection of roadbed, track, bridges, grade crossings, ties and ballast helps spur the railroads to provide and maintain good operating conditions.

The most modern electronic gadgets are employed by railroads in checking their countless miles of steel rails. A special "detector car" like that invented in 1927 by Elmer A. Sperry (of gyroscope fame) travels slowly over New Jersey rails, shooting electrical impulses into the steel. Any defect in the rail sets in motion a machine which simultaneously sprays white paint over the defective piece of rail and also records the defect on a tape inside the car. No train may cross the defective rail until it is replaced.

Electronic devices are also used in many terminals before a train

Modern signals and rock-ballasted roadbed like this stretch along the Lehigh Valley are typical of Jersey lines.

starts its run, to check wheels and axles for hidden flaws. Meanwhile, the car inspector peeks into journal boxes to see if they are properly packed and taps wheels and axles with a hammer and listens for flaws. He checks the air brakes before the train leaves the home terminal and every time cars are added or detached.

Honored above all else in railroads is TIME; nothing so symbolizes accuracy as the railroad man's watch.

No watch may vary more than 30 seconds per week from the time signal of the U. S. Naval Observatory in Washington. Regular inspections insure there are no variances. Every one from engineer to foreman of track gangs carry such synchronized time pieces, and one of railroading's most familiar sights is that of the engineer and the conductor comparing watches before a train run.

The duties of every operating railroad man are governed by extensive rules which he is required to study and learn. The rules cover everything from speeds on all parts of his railroad, including curves, to long-standing Rule 99, which provides for the protection of the rear of a standing train in much the same way as such protection was afforded 100 years ago.

As soon as a train comes to more

Tape recorder registers good rails during Sperry Detector Car trials.

than a temporary pause, the engineer touches his whistle or air horn —a long blast, then three short ones.

That has always meant "Flagman protect rear of train."

Off the flagman hustles to observe Rule 99, going "as far back as necessary" to protect his train. He attaches one or two torpedoes to the track, perhaps lights a fuse (bright flare) or stays to flag oncoming trains. Actually, in today's high speed train era Rule 99 is only a secondary precaution at best, but most railroads seldom drop a safety rule once it is established. The more the safer.

One of the state's most progessive safety measures is the Erie's "four-way" radio-telephone system, now installed on more than 90 per cent of the Erie's main line from Jersey City to Chicago.

The "four-way" operations are between engine and caboose, between passing trains, between trains and wayside stations and between adjacent wayside stations. Possibly the most important, from a safety angle, is the communication between passing trains with crews on the lookout for hot journals and other things which might cause trouble. Obviously radio is vital in train control, which in turn underlies the operating safety of a railroad.

Modern signals — a railroad's eyes.

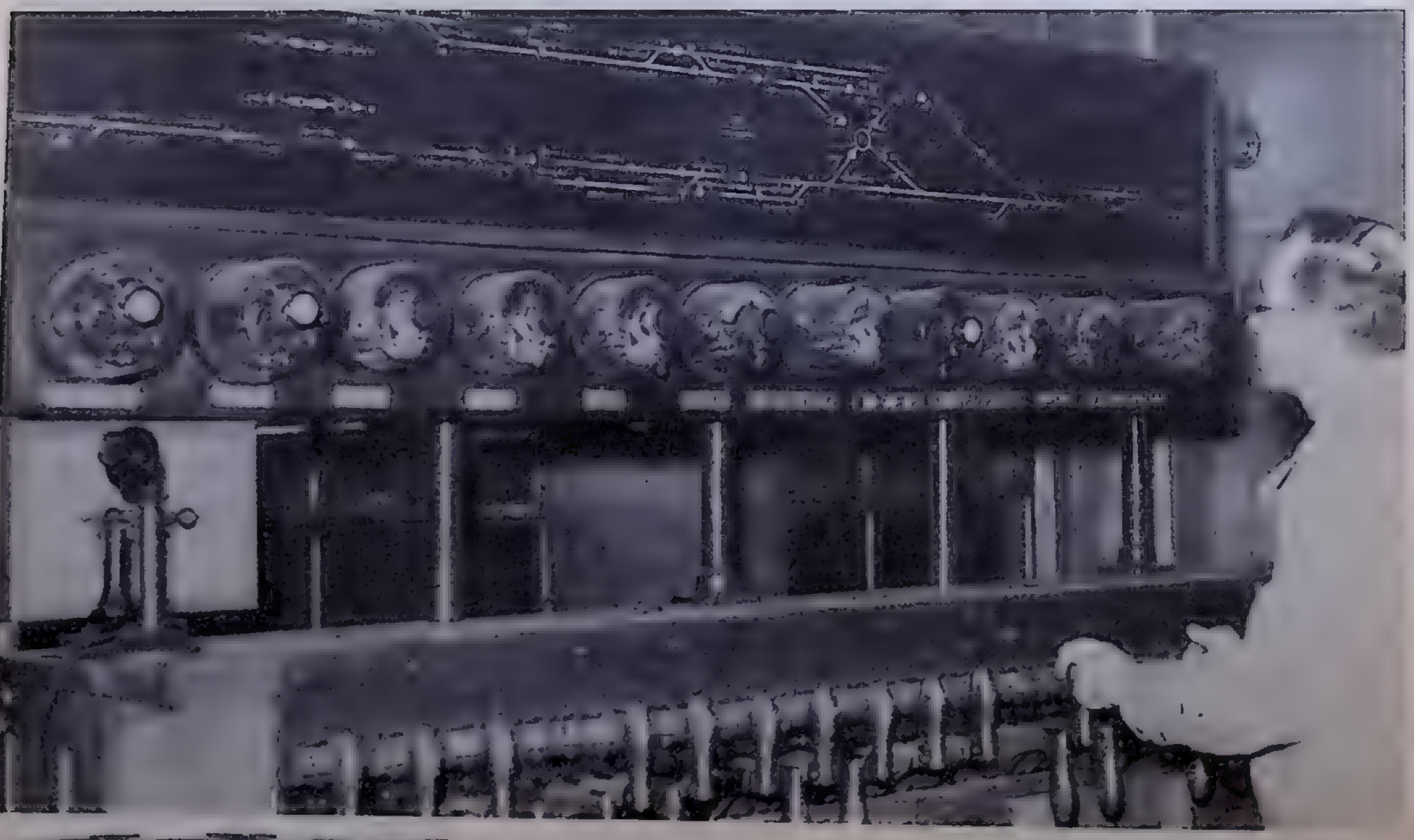
Many railroads have been supplementing all other regulatory factors with Centralized Train Control (C. T. C.). Under C. T. C. an operator or dispatcher in a terminal or division point exercises complete control over all switches and signals through an extended piece of railroad—as much as a whole division with hundreds of miles of track. Every movement of a train on his controlled stretch is automatically and continuously shown on a panel board before him.

Yet, despite block signals, cab signals, air brakes, synchronized watches, ballast cleaning machines, train orders, C. T. C., car inspectors, radio and all the rest, a train barrels along out on Long Island on a Thanksgiving Eve and kills 75 persons in a rear end crash. Another twists off a track at Woodbridge and takes 84 lives.

Why?

Apparently because of the one thing railroading hasn't overcome —the human factor, whether it be human judgment that fails to recognize the need for safety measures at a given point or the human who fails to abide by such safety aids which are present to guide him.

The intricate panel of a modern interlocking system, which controls as much as a whole division of a railroad.



Nolan's Point, Lake Hopatcong, in the days when Jersey Central excursion trains brought thousands to the lake.

When Railroad Was King

Turn of the Century Was Golden Era of Train Travel With Excursions the Vogue

THE April sun warmed the boys lounging at the Roseville avenue depot in the Spring of 1898. Down in the distance they could hear the chugging of an engine laboriously climbing the steep grade between Newark station and Roseville.

"You reckon that's the 'Centennial' coming?" asked the smallest boy.

"Nope," replied one of the big boys, abruptly. "Any durn fool over 8 knows the 'Centennial' don't haul these locals—she only pulls the 'Bankers Express.' I figure this'll be the 'Roseville.'"

Sure enough, it was the "Roseville," Number 37 on the Morris & Essex. The engine slowed to a halt at Roseville to drop a bundle of newspapers and pick up a lone Westbound passenger.

Every boy at the depot thrilled as he waved to the engineer or shouted to him above the snorting of the iron monster headed for far-off, enchanted places. Golly, if only he could grow up to be an engineer . . .

Meanwhile, out in Flemington Junction or Phillipsburg or Newton other boys waited at depots or haunted roundhouses and yards, all stricken with the railroad fever which swept over the country between 1890 and 1915. This was railroading's Golden Quarter Century.

Truly, Railroad was King.

Everywhere the railroads gathered public favor. Accidents declined, service improved, comfort grew. Railroads made money and railroads spent money. Above all, the railroads apparently had well in hand for all time the problem of getting from one place to another in a hurry.

Henry Ford? A crank. This was railroad's Golden Age!

Here in New Jersey there was more railroad mileage in proportion to the area than in any other state. Few places were less than 10 miles from a depot. If a farmer from West Jersey wanted to go to the city he hopped a train. If a swain from Jersey City wanted to take his girl to Lake Hopatcong he bought two tickets on one of Jersey Central's big Sunday excursion trains.

Speed and safety—railroads emphasized those as they set out to court public good-will at the Turn of the Century. Keen competition brought railroad public relations to the fore. Phoebe Snow was born, Casey Jones died; both were promoted to the skies.

SPEED?

New Jersey set off a speed era in 1892 when Engine 385, a brand new Jersey Central Baldwin, rocketed from Jersey City to Philadelphia and back in four hours and 25 minutes.

Several newspapermen riding in cars behind Engine 385 held their hats as the train streaked down the hill west of Fanwood at 92 miles per hour. Later, on a straightaway track, Engine 385 accomplished the miracle of clicking off two miles in 75 seconds. The railroad world buzzed: A speed of 105 miles per hour! A world's record!

The record didn't last long—not with the publicity-minded New York Central around.

In May of 1893 Engine 999 picked up the "Empire State Express" near Batavia, N. Y., and roared over a measured mile at the then unheard of speed of 112.5 miles per hour. That heightened the railroad fever, particularly when the Central induced the government to bring out a 2-cent stamp bearing a likeness of the "Empire State Express."

People who gathered to talk about railroads always got around to the

Jersey Central's "385," which made record speed of 105 miles per hour in 1892.

famed "Empire State Express." Naturally other railroads set out to propagandize their own "Limiteds" and "Expresses."

The Lackawanna declared with some pride that it had been running a "Lackawanna Limited" from Hoboken to Buffalo since 1883. "Oldest named train in the country," it boasted.

"We don't have the oldest; we have the newest," the Lehigh Valley countered in 1896 as it announced its new "Black Diamond Express" from Jersey City to Niagara Falls, via the anthracite coal fields.

"Handsomest train in the World," shouted the Lehigh Valley ads, without inhibition. All the railroads were claiming much the same thing, so they didn't deny the Lehigh Valley claim. The L. V. went on:

"Fast daylight train . . . lighted throughout by Pintsch gas . . . each car finished in polished Mexican mahogany, with figured mahogany panels and inlaid beveled plate mirrors . . . ceilings are empire dome pattern finished in white and gold."

There was unquestionable admiration for the sleek new "Black Diamond," whose black sides glistened like the anthracite coal which had made the railroad famous. By 1900 so many newly-married couples had gone to Niagara Falls on the "Black Diamond" that it had the sub-title of "Honeymoon Express."

And, by the way, said the Lehigh Valley, with a certain amount of smugness, "This Line uses anthracite coal entirely, thus avoiding the dense volumes of smoke that so terribly annoys passengers on lines using bituminous coal."

That struck the hard-coal burning Lackawanna in a prideful spot, and some inspired advertising man came up with the memorable "Phoebe Snow" in July, 1900.

Phoebe told in rhyme after rhyme how she went to Buffalo and kept her gown spotlessly white—because she rode the Road of Anthracite, the Lackawanna.

The boys hanging around the Erie depot used to tell of Phoebe staggering into Buffalo one day coal-black from glorious head to dainty feet.

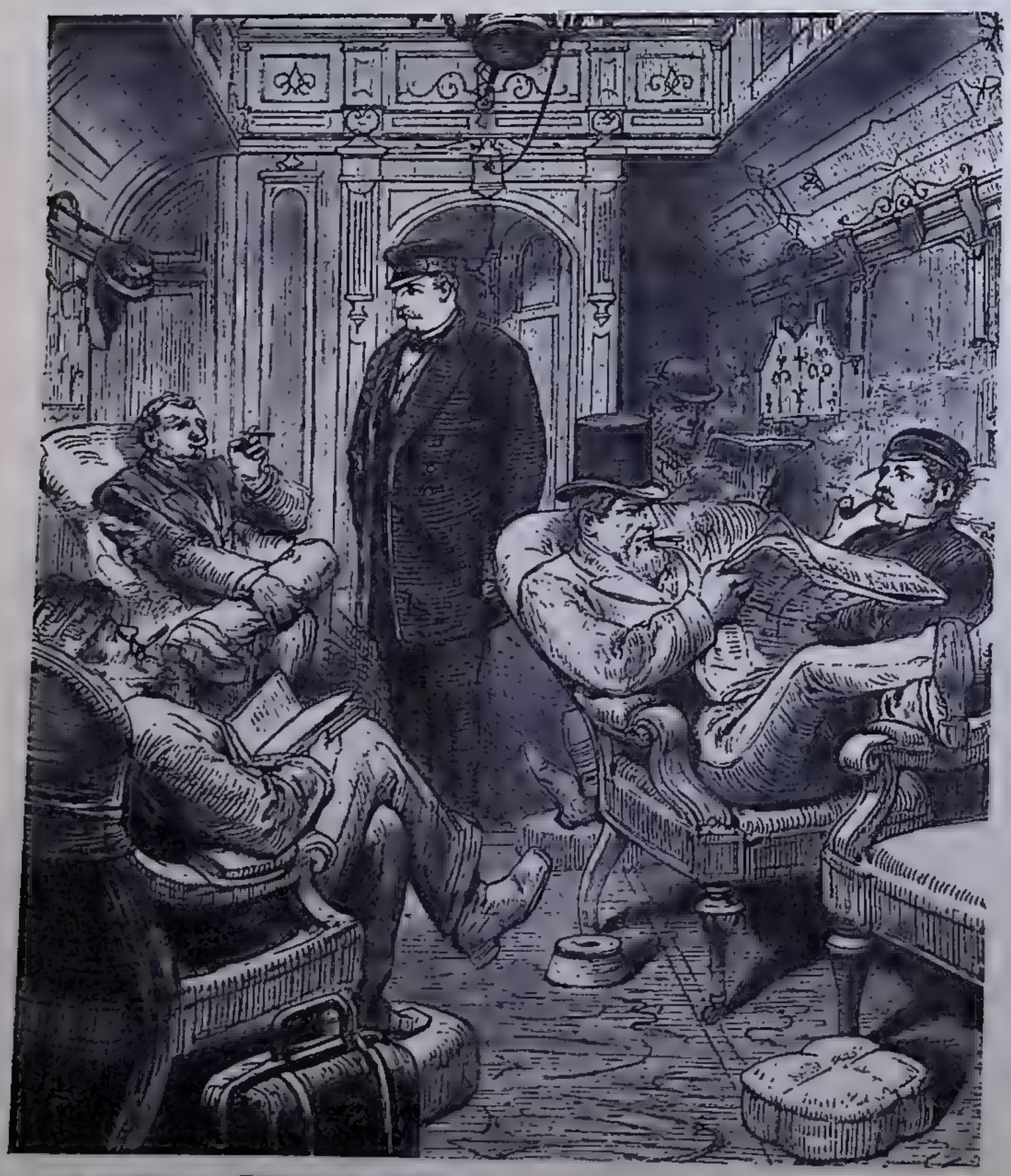
"Got on the Erie by mistake," they guffawed.

Of course they would say that about the Erie, the "Calamity Jane." Everything the railroad did got laughs at the Turn of the Century.

Then red-whiskered Fred Underwood brought his keen mind and shrewd sense of humor to the Erie presidency in 1901. They laughed when Fred sat down . . .

Underwood set about energetically to cut down curves, lessen grades and improve the Erie's service. He was cautiously aware of the Erie's non-too-reassuring accident record, however, carrying with him

These gentlemen lounging in 1890 smoking car felt luxury had reached its height.



an ax in his private car, "in case we're in an accident and I have to chop my way out."

Quickly the Erie's service improved, but still the commuters laughed (when they weren't grumbling). Underwood told friends that "if it weren't for the Erie half the vaudeville performers would be looking for jobs."

Underwood decided in 1906 to turn the tables.

For a year and a half every new Erie timetable carried the latest joke about the railroad. It included such gems as these:

"Spring is here at last; the Erie has replaced its snowplows on its cow-catchers with mowing machines."

"A commuter suggested that the Erie put the cow-catcher on the rear of the train. No Erie train is liable to overtake a cow, but what's to prevent a cow from walking on the back of a car and biting a passenger?"

Several thousand commuters in Bergen and Passaic counties write in and commended Underwood, suggesting that he call the whole thing off. Underwood did — and had the last laugh by publishing all of the jokes in book form.

Underwood shrewdly gauged the public enthusiasm for railroads. He ordered new locomotives on each operating division named after engineers who had seniority and outstanding records at Erie throttles. For less famed drivers he created the Order of the Red Spot, a bright carmine disc under the engine's number plate to indicate that the men who handled that engine performed their jobs loyally and well.

A similar idea prevailed on the Lackawanna, where a highly-polished brass star and circle on the front of a locomotive told at a glance that the engineer was one of the best. Sadly enough, when W. H. Truesdale succeeded Sam Sloan as Lackawanna president in 1899 he quickly abolished such frills. He believed in solid railroading.

Although Truesdale built the marvelous Cut-Off in 1912 and wonderfully improved the line, many railroaders and fans of all ages never forgave him for painting out the names on their favorite engines. He had failed to recognize the value of employee pride and public interest and enthusiasm. If

Genteel surroundings made things pleasant for the ladies in the "parlor car."

Passengers at Roseville Avenue wait to board Montclair-Newark train in 1894.

D.L.&W. excursion train stopped at Delaware Water Gap, with crew and passengers posing for the family album.

John Casson of Paterson, then the country's "oldest engineer," seated aboard the little train which featured the attractions at Cranberry Lake about 1900.

ever there was enthusiasm among the public for any industry, it was for railroads from 1890 to 1915.

Take the boys at a grammar school in Orange, for example, in 1910. There were few who didn't try to get over to Highland Avenue station at least a couple of times a week to watch the "Afternoon Parade" of famous West-bound commuter trains.

They knew the signals and switches were set to send the aristocrats roaring through Highland Avenue on an express track. First came the Passaic & Delaware Express, out of Hoboken at 4:05 P. M., headed for Gladstone over tracks from Summit which still bore the name of the long-defunct Passaic & Delaware Railroad. Ten minutes behind that steamed the Morristown Banker's Express, with Engineer Ben Day at the throttle. Minutes later the Newton-Branchville Express flashed by.

(Incidentally, the P. & D. Express and the Banker's Express now are combined into the Lackawanna train which leaves Hoboken at 4:15 P.M. and Newark at 4:28—first stop Short Hills, rear cars for Gladstone).

Elsewhere in the state the boys hung around the yard, hoping for a ride on a "goat" (switch engine) or maybe just listening to the interchange among trainmen. The latter never disappointed the boys.

Pulling a plug of "Trackman's Solace" from a hip pocket, a switch-

This Lehigh Valley crew poses with obvious pride in front of their little three-car local train of the 1890's.

ing engineer would bite off a chaw and hand the plug to a trainman.

"Never forget the time I worked out West," the engineer might say, "We ran into a herd of buffalo. Killed six. Ate nuthin' but buffalo for nigh two months."

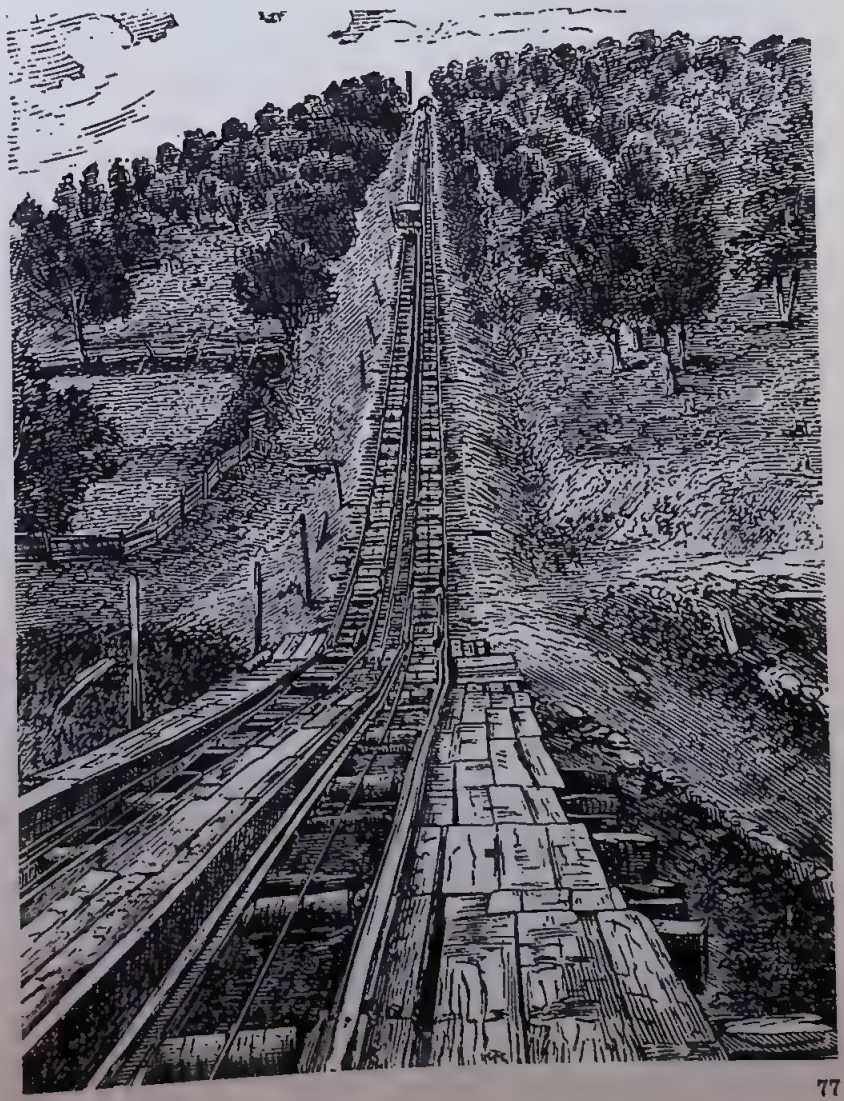
Then the talk for the benefit of the wide-eyed audience would veer to other railroads and other men—like the Susquehanna Railroad engineer who got the nickname "Buttermilk" because he drove his milk train so fast from Sussex that the milk was churned before he got to Jersey City.

Of all the engineers, however, none was more fascinating than John Draney of the Lackawanna, perhaps the best railroad storyteller in all Jersey. John, small and lively, loved his profession and was ever eager to talk about it. If occasionally there were those who wondered if perhaps Draney exaggerated a point or two, never was there anyone who didn't relish hearing him.

Take the story he told about the time on September 11, 1901, when he was called to haul Dr. Janeway, a famous New York physician, to Buffalo to tend the stricken President McKinley. Even as Draney waited for his locomotive to be readied in Hoboken the wires crackled the story: "President McKinley shot by assassin; condition grave."

"Well, sir," Draney would recollect, "I ran that 395 miles in 405 minutes. We had a green light all the way and I went so fast the doc-

The famous Switchback at Mauch Chunk, Pa., "the Switzerland of America," where the Lehigh Valley and Jersey Central alternated in taking Sunday excursions.



Note extra "I" in name plate of this Susquehanna locomotive named for Philip T. Nixon, engineer noted for deep religious convictions as well as his skill.

tor rode all the way to Buffalo sitting in the aisle!"

John was more—far more—than a story-teller, nevertheless. He was a link between modern railroading and the days of iron men and wooden coaches. When he retired as engineer on the Lackawanna Limited in 1931 he had spent almost 59 years on the railroad, and had traveled more than 3,000,000 miles.

One of his little known duties was as engineer of the "United States Express" (or "Boston Flyer"), which made a roundabout trip from Hoboken to Boston from 1893 to 1896. The "Flyer" ran up the Boonton Branch to Waterloo, then up through to Maybrook via the Sussex Railroad and the Lehigh & New England—then on over the Poughkeepsie Bridge and ahead to Boston.

"That was some train," John liked to tell the boys. "Wooden cars, coal oil lamps and a coal stove at each end of the cars. Cows on the tracks. But we made the run."

Boys elsewhere had their favorite engineers—such as Ike Pixley of the Lehigh Valley, who lost a leg in the Blizzard of '88 but ran a switch engine for 40 more years; John Casson of Paterson, who started working on the Morris & Essex in 1838 and switched to the Erie in 1841—and in 1903 was called "the oldest locomotive engineer in the United States"; and Lackawanna men like Bob Taylor, Jim Scripture and the Day brothers. It's impossible to list them all.

Much more restrained than the bubbling John Draney were two engineers who had countless scores of followers in the Paterson area—Harvey Springstead of the Erie and Philip Taylor Nixon of the New York, Susquehanna & Western.

"Look at the grin on Harv Springstead," folks along the Erie said in 1910 when Engine 970 rolled out of the shops with his name in big gilt letters on the cab. "He's showing enough teeth to make Teddy Roosevelt envious!"

Harvey Springstead had reason to grin. No one had seen an engine on the Erie bearing a man's name since the "E. B. Thomas" had been built for the World's Columbian Exposition in 1893.

Soon the Erie announced it was going to mark every division's best-kept engine with the name of the engineer. The "Harvey Springstead" was the first—and the story was proudly told that Springstead had run his engine so intelligently that it had gone more than 45,000 miles without general repairs, a remarkably good record.

Two years later, in 1912, the N.Y., S.&W. took engine Number 12 and named it for Philip T. Nixon, a railroad man since 1866 and an engineer since 1873 (until his retirement in the 1920's, by the way).

The dean of the Susquehanna's engineers, Phil Nixon was also one of its most popular personalities. His kindly disposition and his deep religious convictions earned him respect wherever he went. He never swore, drank or smoked and his spare time was devoted to the Methodist Episcopal Church, whose services he helped bring to Hawthorne in 1893. Early services were held in the local railroad station (then called "North Paterson"), but before long enough money was raised to build the church.

Actually, the high regard in which Philip Nixon was held made even more regrettable a mistake by the painter who put his name on the cab. As the engine emerged into the daylight it was quickly noted that Nixon's first name was spelled with two "L's"—a fact which Nixon took with characteristic good grace. He calmly waited for the engine to roll the necessary thousands of miles before it went back to the shop for overhaul, and the name change.

Yes, Railroad was King . . .

Older folks had the fever, too. They sang the mournful dirge about Engineer Casey Jones, killed in 1900, the song said, when his "big

Jersey Central's "Queen of the Valley," running at 60 miles per hour in 1902.

ten wheeler" rammed another train. They retold the ballad of the "Fast Mail" wrecked on the Southern Railroad, in which Engineer Broady was found with his hand on the throttle, "a-scalded to death with steam."

Even cynical Broadway caught the fever.

In the 1890's theater-goers applauded such as "The Midnight Special," "Railroad Jack" and 'The Pay Train" and hissed scenes in which the "proud beauty" was lashed to a rail by a sulking villain to await a fearful death from the onrushing Limited (which always arrived a split second after the hero).

Possibly the most famous railroad play of all, however, was "The Fast Mail," which packed them in on Broadway in 1899. It was equally successful in the hinterlands—two companies toured the land with the exciting drama based on the theme that the railway mail clerk always gets through.

Closer to home, folks thrilled at real-life railroad drama.

They read with admiration, for example, of Miss Nellie Hand of Trenton, who on December 11, 1905, saw her duty and did it. She was walking home that dark and stormy night when she spied a shed blown down on the Reading Railroad tracks.

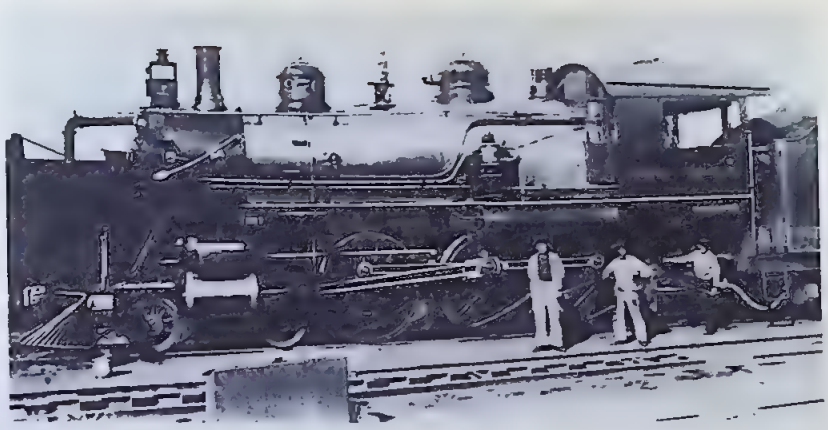
Grabbing a lantern from a nearby crossing, Miss Nellie dashed up the tracks and furiously waved to the engineer of the Trenton to New York train. The train screeched to a halt but the heroine disappeared into the gloom.

Five days later the railroad located Miss Hand and offered her a reward. She refused the money.

"Any one would have done it," she observed.

Seemingly as if to heap fuel on the spreading fire of railroad enthusiasm, the railroads advertised splendid new equipment on their long runs. Pullman cars were said to be "gilded, cushioned and upholstered palaces, regarded with awe as they sit on sidings awaiting their masters . . ." There was sufficient interest to prompt etiquette writers to specify good manners on a Pullman, such as:

"If a young mother with a little child enters and has a ticket for the upper berth, whosoever shall hold the lower shall give it up."



Engine Number 970, named in honor of the Erie's Harvey Springstead when his road decided in 1910 to designate those engineers who had exceptional records.

Probably, however, that which brought the railroads closest to most Jersey people were the excursions—the jaunts to the Switchback Railroad at Mauch Chunk in the Lehigh Valley, the excursions to Lake Hopatcong, the parties at Bellewood Park and Musconetcong Mountain and the "Specials" to Atlantic City and Washington, D. C.

Almost left out of the excursion trade was the Lackawanna (Morris & Essex), mainly because it permitted no Sunday trains until 1899. People along the way, both irked and amused, insisted that M. & E.

Early drawing pictured "Return of City People from a Weekend in New Jersey."

stood not for Morris & Essex but for "Methodist & Episcopal." After the ban was lifted the Lackawanna ran some Sunday School chartered trains to Hopatcong, the Poconos, Delaware Water Gap and—above all—to Cranberry Lake. For a while at the Turn of the Century it appeared as if Cranberry Lake might be the Lackawanna's answer to the excursion problem.

On any given Sunday from 1900 to 1910 a thousand people were dropped by the Lackawanna at the bright red station on the shores of Cranberry. One historian recalls that "old residents were aghast at the hordes unloaded on our erstwhile peaceful shores."

The multitudes enjoyed themselves thoroughly. They could lay down 15 cents and get a trip around the lake in a naphtha launch. They could troop across the wooden bridge to the island, to enjoy the midway, to bowl or to ride the famous miniature railway. The young swains and their girls danced in the pavilion. Life was gay at Cranberry.

Then in 1911 the word was whispered about among themselves by Lackawanna officials: "The bridge to the island is dangerous. The planks are rotten!"

One dark night the railroad hitched a locomotive to the span and pulled it quietly into the lake. It made scarcely a splash—mainly because by then the bulk of the Sunday junket traffic had lodged in the hands of the Lehigh Valley and the Jersey Central anyway.

Among other things, the two alternated in taking special Sunday trips up to the famous Switchback at Mauch Chunk, Pa.—"The Switzerland of America."

Built originally to carry coal over the mountains, the Switchback

The Lackawanna's beloved John Draney.

had become by the turn of the century a favorite excursion spot. The trip "up to the clouds" brought the traveler into rarefied atmosphere guaranteed free of hay fever. It was a marvelous day for $1.50 (plus 50 cents to take the Switchback's thrilling mile-a-minute gravity ride over a scenic nine-mile route).

In 1904 the Lehigh opened Bellewood Park, "the delightful excursion resort of the Musconetcong Mountain," and for many years thousands of people rode the Lehigh out to the mountain. There, midway between Flemington and Phillipsburg, they reveled in "high elevation, mountain air, cold springs, babbling brooks and leafy paths."

Still, it remained for Jersey Central to have the finest short Sunday excursions of all—to Nolan's Point on Lake Hopatcong. As many as 60,000 people took the trips every Summer in the early 1900's. Trains left the main line at High Bridge and rolled north through Bartley, Long Valley and up Hopatcong's east shore to Nolan's Point—the long way 'round.

According to Gustave Kobbe's splendid little book on the Jersey Central, Lake Hopatcong until 1890 "lay almost neglected at the threshold of a great city seeking new fields for Summer amusements."

Jersey Central changed that. It bought land at Nolan's Point and laid out excursion grounds, complete with a dance pavilion, swings and walking paths. It was a place "where a body might have no end of fun, but quiet and orderly." A body could also have a hot noon meal for 50 cents.

Many people "concentrated a whole year's holiday into one day at the lake," according to Kobbe, who added that "there is almost a touch of pathos in their unbounded delight."

Accommodations were available for people "of both moderate and ample means"—Nolan's Point Villa at $2 per day for the moderate and Hotel Breslin at $5 per day for the ample. At Hotel Breslin, too, the ample could also acquire a rowboat, "by the day, with man $3; without man, $2."

Never to be forgotten was the long ride back to Newark or Jersey City, particularly when a good full moon bathed the valley beneath Schooley's Mountain in its soft glow. The thousands of people riding the round trip for $1 blessed Jersey Central.

Yes, Railroad was King . . .

World War I was just ahead and with it would come sooty soft-coal burning engines and deteriorating rail service. An era was about to die, but for the moment in the full moon in Long Valley up in Jersey everything was bright.

The Lehigh Valley's Black Diamond Express, taken during the first run from Buffalo to New York on May 18, 1896.

Junction of the Springfield and Orange trolley lines in 1912 at the foot of Essex County Court House hill.

The Street Railways

Transition From Horse to Electric Trolleys Marked Another Rail Transport Service Era

TWO MIDDLE-AGED Newark gentlemen standing at Broad and Market streets watched glumly as workmen strung overhead trolley wires up Market street toward Court House Hill on a September morning in 1890. On the tracks beneath the wires, prancing horses still drew the dark orange street cars from Springfield avenue and the blue from South Orange avenue.

"It won't be the same without the horses," sighed one of the gentlemen.

Out in Broad street colors flashed by on other horse-drawn street cars —red to Woodside, yellow to South Broad, green to Roseville and white (of all colors) to the Ironbound. Their horses clattered noisily over the streets, dragging the cars along at a pace just faster than a man could walk.

No, it wouldn't seem the same without the horses after Newark's first electric street cars started running up Springfield avenue to Irvington on October 4, 1890.

The gentlemen recollected that horse-drawn street cars had been rolling slowly over the streets ever since the 1860s and by 1890 had spread far out into the suburbs (although at four miles an hour a ride up to Tory's Corner in West Orange wasn't something to be taken lightly).

Actually, even the sentimental gentlemen would have admitted—if pressed—that horses had always left something to be desired in the way of motive power.

As far back as 1863 a little steam dummy had been tried on a street railway between Jersey City and Bayonne, but it was worse than the horses. A newspaper account reported that it broke down in many places (failing to specify whether the dummy broke down in many places at one spot or in one spot in many places). It was off the tracks by 1870.

There was no question about the steam dummy tried in Newark in 1871. That broke down in so many places at so many varied locations that it was off the rails in one day.

Word seeped to New Jersey by mid-1883 that Cleveland had successfully tried an electric street car. On June 2, 1883, Newark City Council authorized the Newark & Bloomfield Street Car Railway to use electricity on Bloomfield avenue.

Nothing came of it.

Then people started talking about one Leo Daft, who on April 13, 1887, ran a car by electricity over Scotland road, Orange, on the Orange Crosstown. It was far from a howling success.

Howling, but no more successful, was an 1888 electrical experiment in Orange Valley between Central avenue and McChesney street, up in the heart of Orange's thriving hat-making section. The good people didn't take an electric line quietly. They held indignation meetings. Men shouted that this mockery of nature would invite electricity.

"Storms'll knock those blamed cars off the tracks," they insisted. "Horses and people will get killed."

Elsewhere, electric lines were tried—in Atlantic City and at Asbury Park. A gasoline-motored car was tried unsuccessfully in 1889 on a line between Newark and Elizabeth. Finally, on August 14, 1889, the Passaic, Garfield & Clifton Railway was organized, the first in the state chartered to operate solely by electric power.

Almost a year later—July 26, 1890—the P.G.&.C. started its first three-car electric train. The kids loved it, women feared it (or, with proper 1890 mien, said they did) and men wondered what it would do to their horses.

Most of the horse owners de-

One year after they first received electrified service, Milltown residents celebrated in this manner in 1896.

cided to meet the goldurned contraption halfway. They took their horses up and introduced them to the street cars. Many of the horses were a shade impolite about the introductions, shying brusquely away. One even went so far as to somersault completely over, breaking a pair of wagon shafts in his acrobatic rudeness.

One of the Morris County Traction line's trolleys on the streets of Madison.

There was no questioning the fact that horses left much to be desired on grades like those of the Palisades above the Hudson River or the steep hill at the Essex Court House in Newark.

In 1874 the North Hudson County Railway Co. constructed an inclined plane up the summit of Jersey City Heights from Hoboken. One of the mechanical wonders of the world, they called it. Street cars, horses and all, were driven on and shot up to the top in a minute. Ten years later the company superseded the plane with an elevated cable road to the Heights.

The most spectacular scaling of the heights was North Hudson's viaduct at Weehawken in 1887. The viaduct stretched straight out 800 feet from the top of the cliff, 200 feet above the water, to a point over the West Shore Ferry. Three elevators, carrying 135 persons each, took people to the top, where they boarded street railway cars bound for Eldorado Park or Guttenberg race track.

Court House Hill in Newark

Cars number "2" and "3" of the Plainfield Street Railway lined up in front of car barns for company portrait.

didn't call for such magnificent engineering feats, but it was plenty troublesome—particularly in bad Winter weather. Even the best of horses needed help.

In January, 1888, Newark and Irvington Street Railway Co. figured it had found a magic answer —cables!

Accordingly, a cable was stretched between the tracks from the Pennsylvania Station up Market street to the Irvington car barns. The endless cable, a few inches beneath the surface in an open slot, was kept moving by a steam engine. All the car operator had to do was manipulate a claw so that it gripped the cable. By releasing the grip and applying the brakes the car could be stopped anywhere.

That's what the promoters said.

In actual practice, it was easier to grip the cable than to release it. Often the cable cars careened past irate customers as the grip failed to open. Then the motormen leaped from the car, dashed ahead to one of the infrequent telephones along the way, and asked the power station to stop the cable. Naturally, when the cable halted every car on the line came to a standstill.

The cable was abandoned in December, 1888, with not even a sentimental tear shed for its passing.

Finally it was October 4, 1890 and Newark Passenger Railway's car No. 1, the "Irvington," was ready to go clanging up Market street and on to Irvington via Springfield avenue. It was the state's first continuous operation on a large scale.

Never had Springfield avenue seen such a day. Excited crowds thronged the streets waiting for the long bright yellow monsters. Not even a circus parade drew more people down to the curbs. This was a day to celebrate, a day to hoist little boys above the crowd to give them a sight to remember to their dying days.

As the "Irvington" slid up Court House Hill with officials crowding its 34 seats, people "stood fixed in their tracks, gaping with open eyes and mouths at the wonderful thing with no apparent power."

That's what a reporter wrote the next day, at any rate. As a touch of his own he added: " 'No pushee, no pullee,' as the Chinaman said."

"Fast Line" speedster and crew, shown before starting a 1917 run to Trenton.

Orange Crosstown trolley in 1896. Note GOP headquarters building to right.

Some folks stood well back, heeding warnings that the thing was run by lightning, but most pressed forward. Within three weeks all fears were abated as an equally large crowd gathered to watch

Elevated Hoboken trolley track, erected in the 1880's, was torn down in 1949.

Rapid Transit Co. run its first trolley up Central avenue from Broad street to 18th street.

The same "no pushee, no pullee" reporter scribbled his notes, jotting down a stern report on rambunctious 1890 juvenile delinquents:

"Boys welcomed the cars as a source of sport and irritated the conductor by stealing rides. Some of the more daring stretched full length on the tracks, jumping up as the motorman ground on his brakes and the crowd gasped. A casualty is threatened unless a restraining influence is brought to bear."

Electrification was here to stay, although in 1890 the state still had 18 horse car companies, with 230 miles of track, 696 cars and 4,177 horses and mules. They ranged from the biggest, the Essex Passenger Railway (already being electrified), with 143 cars and 1,015 horses, to the smallest, in Phillipsburg, with four cars and 13 horses.

New Jersey's only completely electrified company at the time was the Seashore Electric Railway Co. with headquarters in Asbury Park. It was a seven-mile line, having 21 cars run by the Leo Daft system, which had failed on Scotland road.

The next decade saw tremendous changes, with nearly every horse line converted to electrical power. Only the Phillipsburg line remained loyal to its steeds in 1900. Once the new power was proved, it spread everywhere.

Not that every municipality welcomed the trolleys. Quite the reverse in many communities, where every conceivable dodge was used to circumvent or to hamper the companies. One example suffices—Montclair.

Trolleys deeply upset Montclair, threatened to tear it apart. An application in 1890 was smothered quietly, but a second request for a trolley line in 1892 developed into a bitter battle. On April 5, 1892, most of the town gathered at the "rink" to debate the issue.

One speaker harshly damned the new mode of travel. He told the crowd that he "did not propose to make Montclair a dumping ground for Dutch picnics and sick baby excursions." A large portion of the audience hissed. The speaker paused, then said coldly:

"When the rest of the geese get through I'll go on."

Once again the "antitrolleys" prevailed and several years elapsed. Then Caldwell protested. Montclair's stubborness was holding up Caldwell's progress. Whether that prompted a change of heart couldn't be told, but on April 20, 1898, Montclair's trolley franchise was at long last granted. There was no lack of caution, however—the authorizing ordinace contained 27 pages of regulations!

That "Dutch picnic and sick baby excursion" remark in Montclair might well have been prompted by goings-on over at Eagle Rock and Cable Road in the Oranges, where promoters in 1893 were laying the groundwork for two playground areas which the trolleys were to make famous.

As Eagle Rock and Cable Road became better known, steady streams of trolleys left Newark on Summer holidays and Sundays bound for the West Essex mountains. On such days, the open cars were so crowded that passengers stood inside or clung to outside running boards. One writer declared that a conductor "had to be an acrobat to travel from one end of the car to the other to collect the fares and an optimist to expect to get all of them!"

The Eagle Rock line zigzagged up the mountain and terminated at Cox's Hotel at the foot of Eagle Rock. Passengers scrambled up a winding path the rest of the way to the top, where they spread their lunches beside Crystal Lake.

Cable Road (Highland Park) promoters attracted thousands of patrons by damming a small spring-fed swampy area to form Cable Lake. To keep the crowds coming the management included such extras as outdoor Wild West shows, carnivals and tight rope walkers.

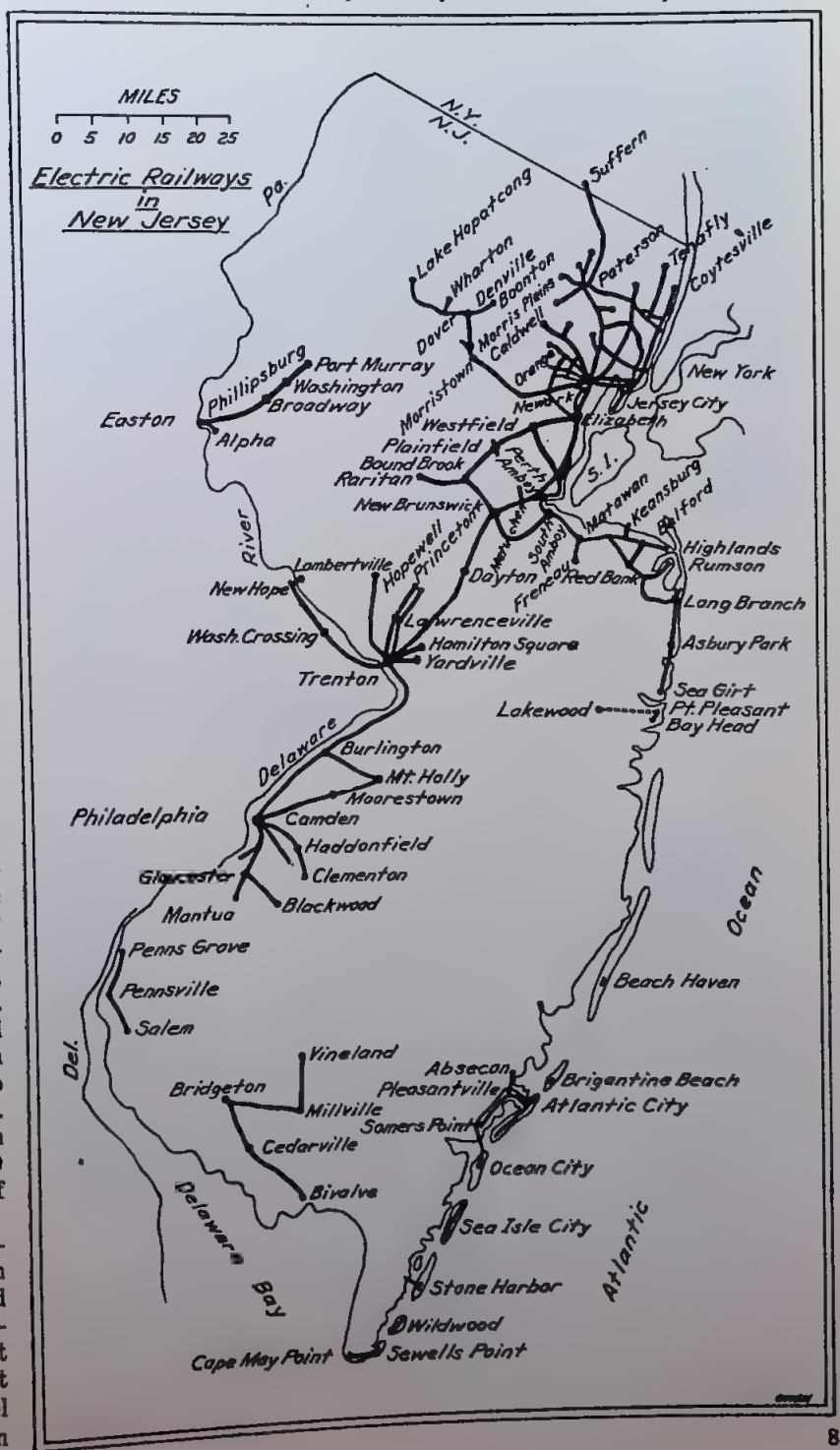
Those Orange areas highlighted a trend which increased with a rush in the 90s—the use of trolleys to get to outdoor amusement spots. Trolleys became much more than a means of transportation—for 30 years they were a chief means of recreation.

Long "trolley trips" became fashionable. Some hardy souls with their pockets full of nickels and an unflagging willingness to transfer from line to line often went hundreds of miles on trolleys. It was possible, for example, to travel all the way to Portland, Me., from New York City via street railways.

One of New Jersey's justly famous trips was that from Jersey City to Trenton, via the "Fast Line." "Fast" was a gross misnomer at first, since the trip took five hours as the electric cars meandered through the fields and forests. The line left Elizabeth for a junket west to Plainfield, then swung down to Bound Brook and later—much later—eased into New Brunswick.

The rub was that the route ran through town after town, with resulting delays. Finally a straight connecting link was built over private right-of-way from Elizabeth to New Brunswick and by 1914 it

Map of all electric street railways ever operated in New Jersey before 1920.



Electric car on the zig-zag switchback route up First Mountain to Cox's Hotel at the foot of rugged Eagle Rock.

was possible to go from Newark to Trenton in two hours. Even at that, it wasn't exactly a trip to excite speed fans, mainly because the circular route into Trenton from the Fair Grounds was a tedious ride.

As trolley lines spread, the number of promoters declined, because it was difficult for the little fellows to get up enough cash to finance big power stations. A continuing series of consolidations in the late 1890s led finally to the organization of Public Service Corp. in 1903. Quickly most of the trolley lines were brought under Public Service's widespreading wing.

Most lines became big and businesslike, but a few stayed small and intimate—like the "Swamp Line" in West Orange.

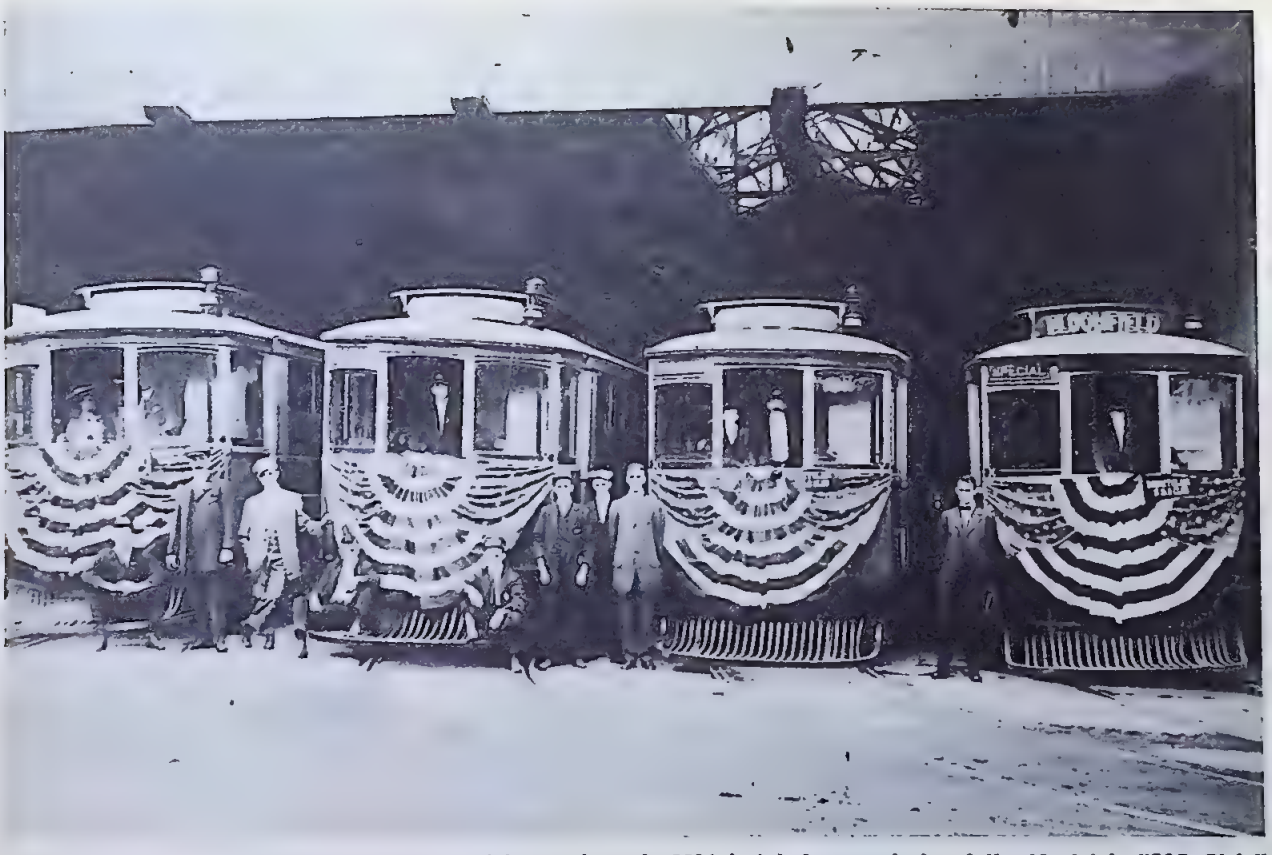
Pursuing a leisurely course from Main street, West Orange, to West South Orange avenue, South Orange, the line had an official title of "Montrose." Somehow, "Swamp Line" seemed so much more fitting.

The "Swamp's" famous motorman-conductor team of Mike Coffey and George Imas built much of the line's legend. Mike, a one-time Indian fighter, always frantically clanged his bell if a regular passenger was late and he spent countless hours chasing boys who insisted on clambering on the back platform and bouncing the car up and down on the tracks. George, in addition to picking up fares (and chasing boys off the platform), also tended the pot-bellied stove in the middle of the car, sending clouds of ashes swirling through the car during his zealous shaking.

A major holdout against consolidation (until 1928) was the extensive Morris County Traction Co., at once one of the longest and most involved systems in the state. It ran from Elizabeth to Lake Hopatcong, with branches shooting off in all directions like the legs of a centipede.

A junction with Public Service was made at Maplewood in 1925, and finally a person could go all the way from Jersey City to Lake Hopatcong, always providing, of course, that he had an affinity for five-hour rides. The greatest com-

Consolidated Traction's "Number 1"—one of Newark's earliest electric cars.



Four chartered cars pictured in the Montclair car barn in 1916 just before a picnic of the Montclair "S&B Club."

pensation was that nowhere else could one see so much varied real estate for so little money.

It really didn't make much difference by 1925, anyway, how a body felt about long trolley rides. The streetcar even then was becoming a back number. The jitney had grown up to be a big boy, whose deep-seated voice gave evidence that he had the strength to push the trolley around.

Things weren't that way when the gas buggies appeared on the scene at the start of World War I. The trolley companies secretly welcomed the little buses, because they didn't have to put on more streetcars to satify the increased demand for transportation.

The jitneys became really pesky in the early 20s. On good days they started out over trolley routes two or three minutes before the streetcars rolled along. On snow-swept days they waited for the streetcar companies to clean the streets, then wheeled along at random to pick up any one waiting for the next streetcar.

Still, as late as 1923, a Morris County Traction Co. official told the press: "No gasoline car has yet been able to compete with the trolley."

How wrong he was.

By 1928 not only had the bus pushed the Morris County Traction Co. trolleys off the tracks; it had also pushed the company completely out of the picture, because when the motorbuses rolled it was Public Service, not Morris County Traction, which did the operating.

South Broad street, Elizabeth, stop on Newark & Essex Horse Car line in 1893.

"Glamor Gals" of the Rails

Majestic 'Iron Horses' Share Romantic Appeal with Sleek Diesels and Electrics

IKE DRIPPS wasn't any different from any other young mechanic from the beginning of time. As soon as he found something mechanical to fool around with, the first thing he did was praise how well it functioned.

Then he took it apart and improved it.

Dripps was luckier than most young mechanics, at that. He got hold of New Jersey's first locomotive, the "John Bull", before any one else had a chance with the English import. In fact, he got hold of the "Bull" in 1831 while it was still a jumble of parts on a Bordentown pier. All that was missing were the blueprints.

Young Ike tinkered and tinkered and soon had a locomotive just like its English builders had intended it to be. Then he set out to change it.

By the time the locomotive was ready for its maiden run at Bordentown in November, 1831, Dripps had added a tender to carry water and a low four-wheeled truck attached to the front to bump wandering cows off the rails. Above all, Ike dreamed of the coming day of high speeds.

Yes, high speeds.

After all, Dripps was only 21 years old and he certainly didn't expect to poke along at 15 miles an hour for the rest of his life. He could see the day when locomotives would go 40, maybe 50 miles an hour.

That's the way locomotive builders have been ever since. That's the way American railroad prime movers have changed from simple nine-ton woodburners to the Diesel giants of today. Along the way there were lots of men like Isaac Dripps.

Even before the "John Bull" settled down to its run on the Camden & Amboy Railroad between Bordentown and South Amboy, Dripps and his boss, Robert Stevens, sat up nights planning something different.

One result was the "Monster", a low-slung job with four driving wheels on each side which lumbered over the C.&A. rails in 1834. A good freight hauler and probably the heaviest engine of its time, the 30-ton "Monster's" driving wheels were 48 inches in diameter.

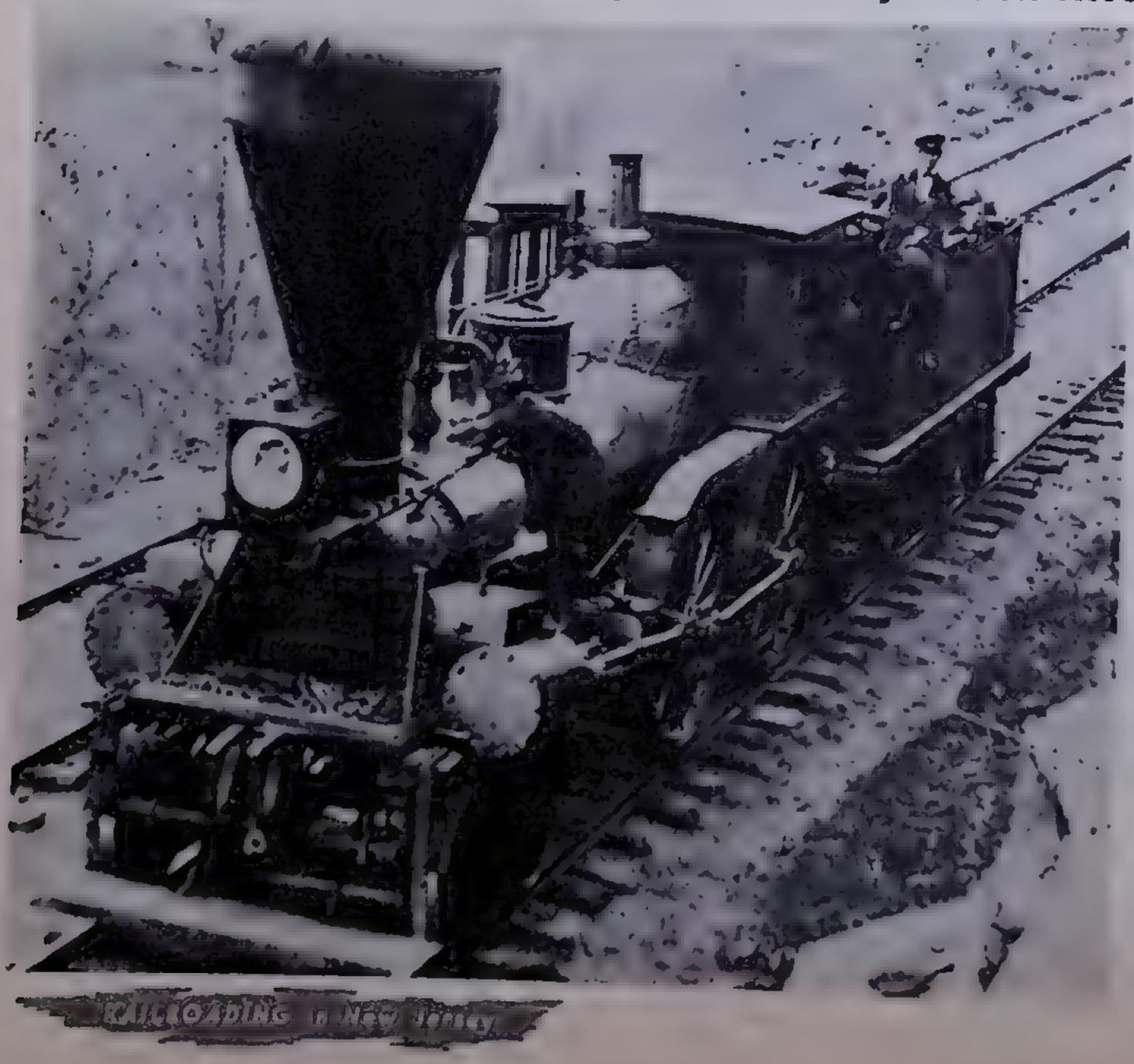
Stevens and Dripps were even then deep into the intricacies of locomotive development as they wrestled with such things as increased weights and more driving wheels for greater traction.

Generally, they were a step ahead of the trends of a 30-year period from 1840 to 1870, three decades in which locomotive builders kept experimenting with new wheel arrangments in order to get greater weight on the drivers for adhesion to the steel rails.

On notable experiment was the unique locomotive which Robert Stevens planned in 1847 after he

The Morris & Essex Railroad's "Essex," built by Newark's Seth Boyden in 1838.

Very early Erie wood-burner, only slightly removed from engines of the 1830's.



had seen a Crampton engine in use on English railroads.

The first of the New Jersey Cramptons, powered by one pair of huge eight-foot driving wheels, was tried in 1849. In theory the eight-foot drivers, eating up 50 feet every time the wheels revolved, should have given greatest speed with the least expenditure of power. Actually, however, the locomotive was limited in hauling capacity and even with light loads had trouble getting underway.

It was all very well for Stevens and Dripps to be experimenting with large drive wheels and speedy engines down on the flat plains. Things were different up in the mountains between Newark and Dover, where the Morris & Essex built westward.

From the first steep grades and sharp curves had been the rule rather than the exception on the M.&E. No other New Jersey railroad dared the slopes head-on in that fashion. Ever since, the M.&E. —and its successor, the Lackawanna—necessarily has had to demand power from its locomotives.

Anthracite coal eventually brought the same situation to the state's other coal carriers—the Jersey Central, the Erie, the Lehigh Valley and the New York, Susquehanna & Western. Those big payloads of black diamonds meant money in the railroad till—but they also meant that original little engines were utterly useless.

Down in Baltimore a former New Jersey horse breeder thought he had the answer.

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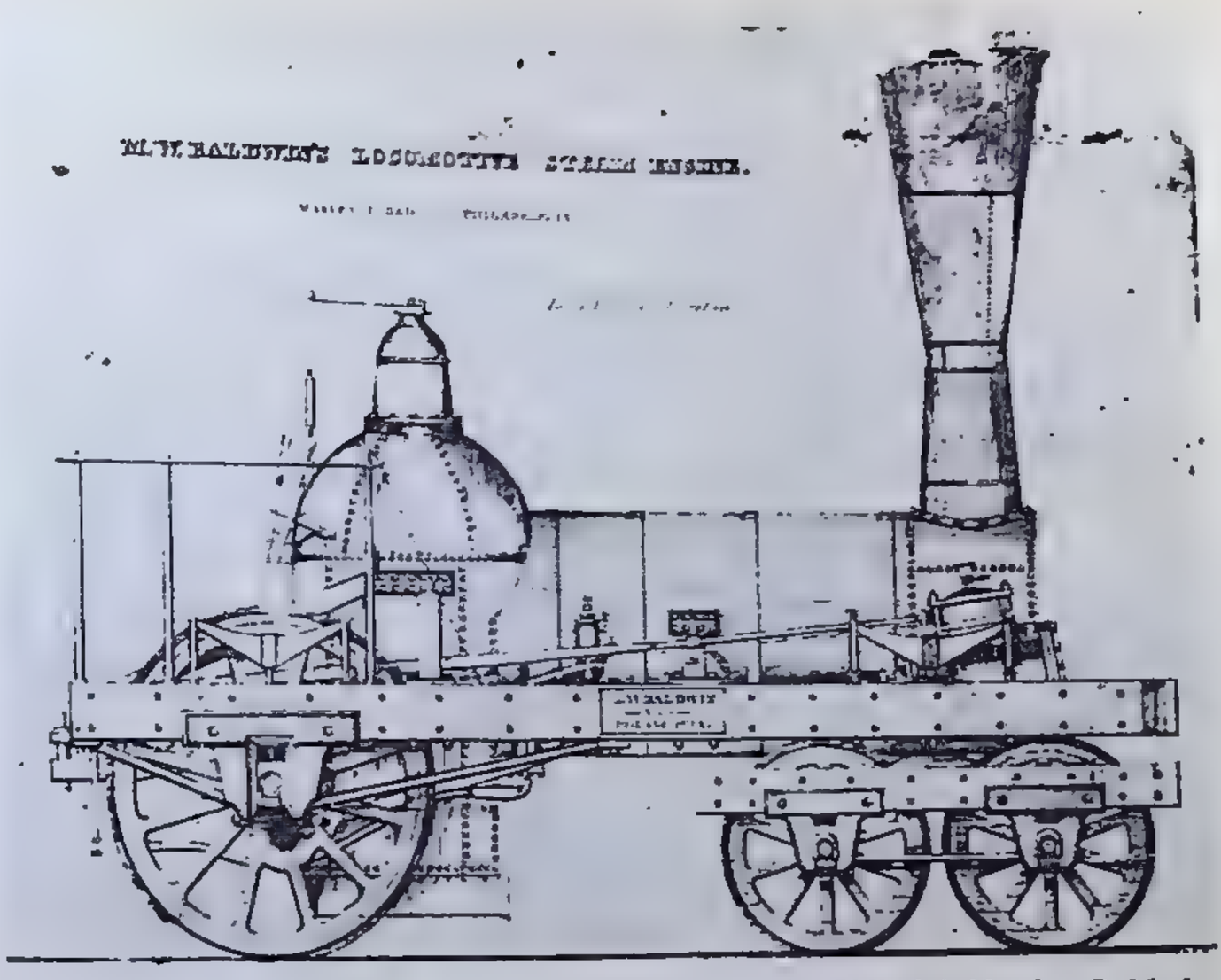
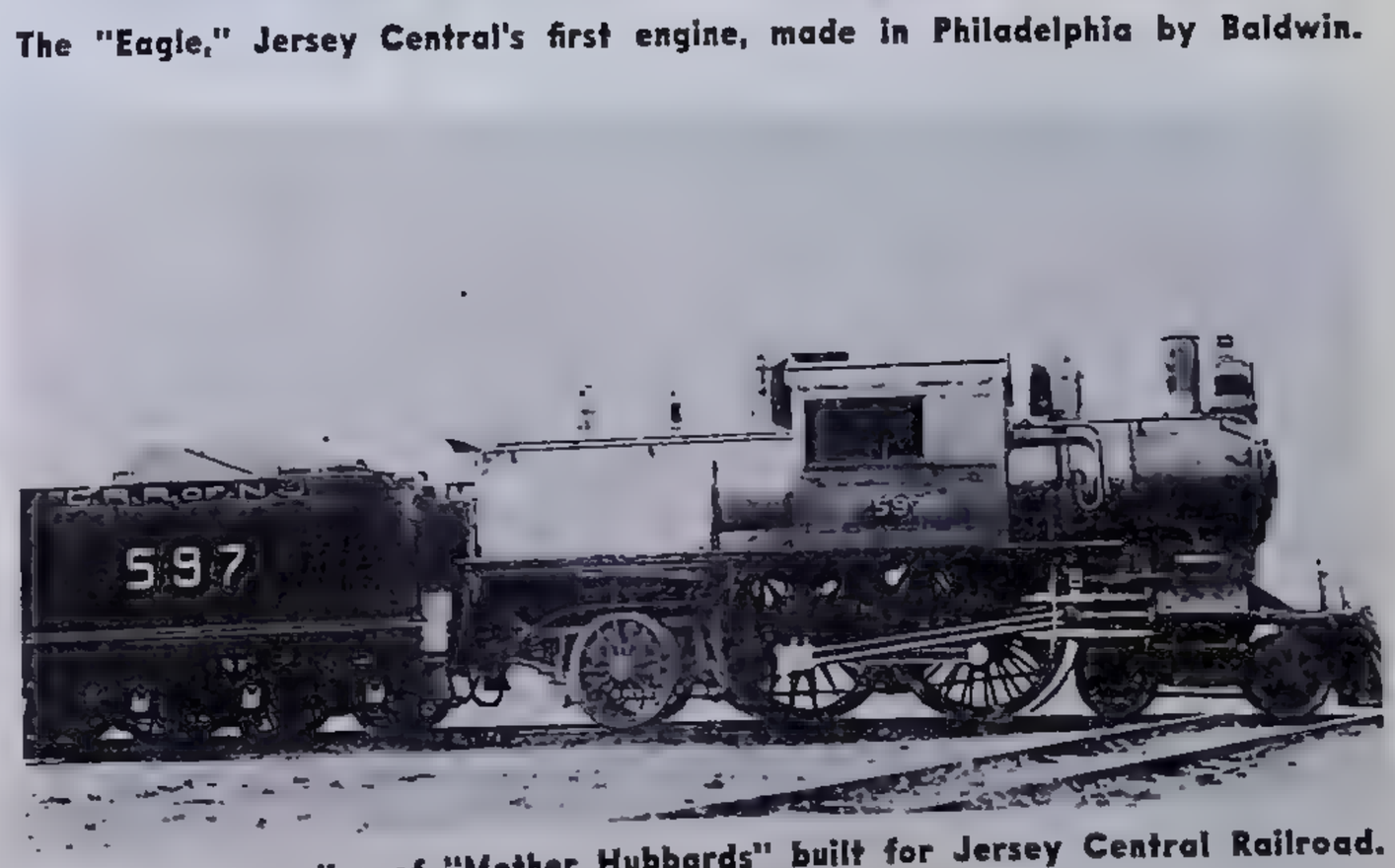
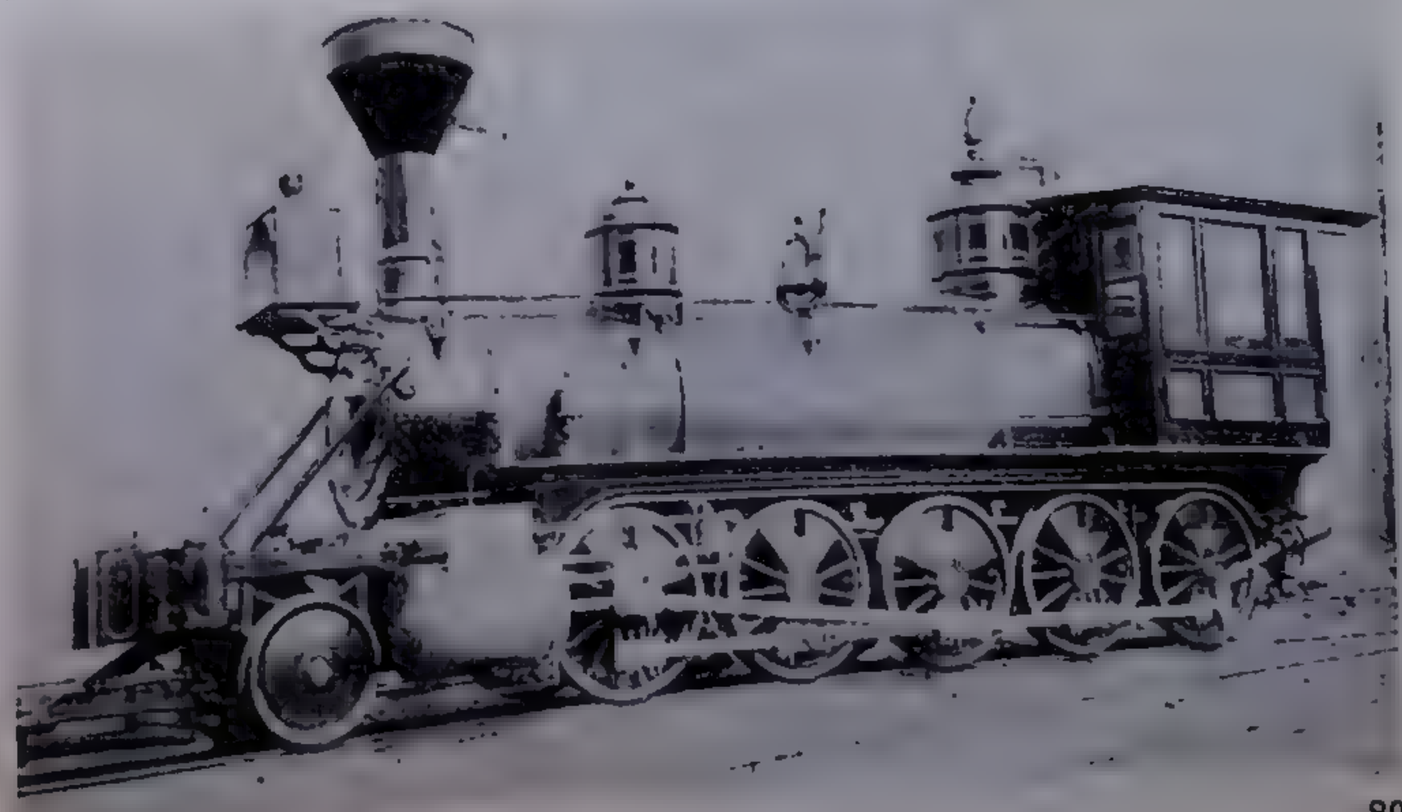


The "Eagle," Jersey Central's first engine, made in Philadelphia by Baldwin.



One of the long line of "Mother Hubbards" built for Jersey Central Railroad.

Lehigh Valley's "Bee," the first decapod-type locomotive and the largest engine built up to the time the Norris Locomotive Works turned it out in 1868.



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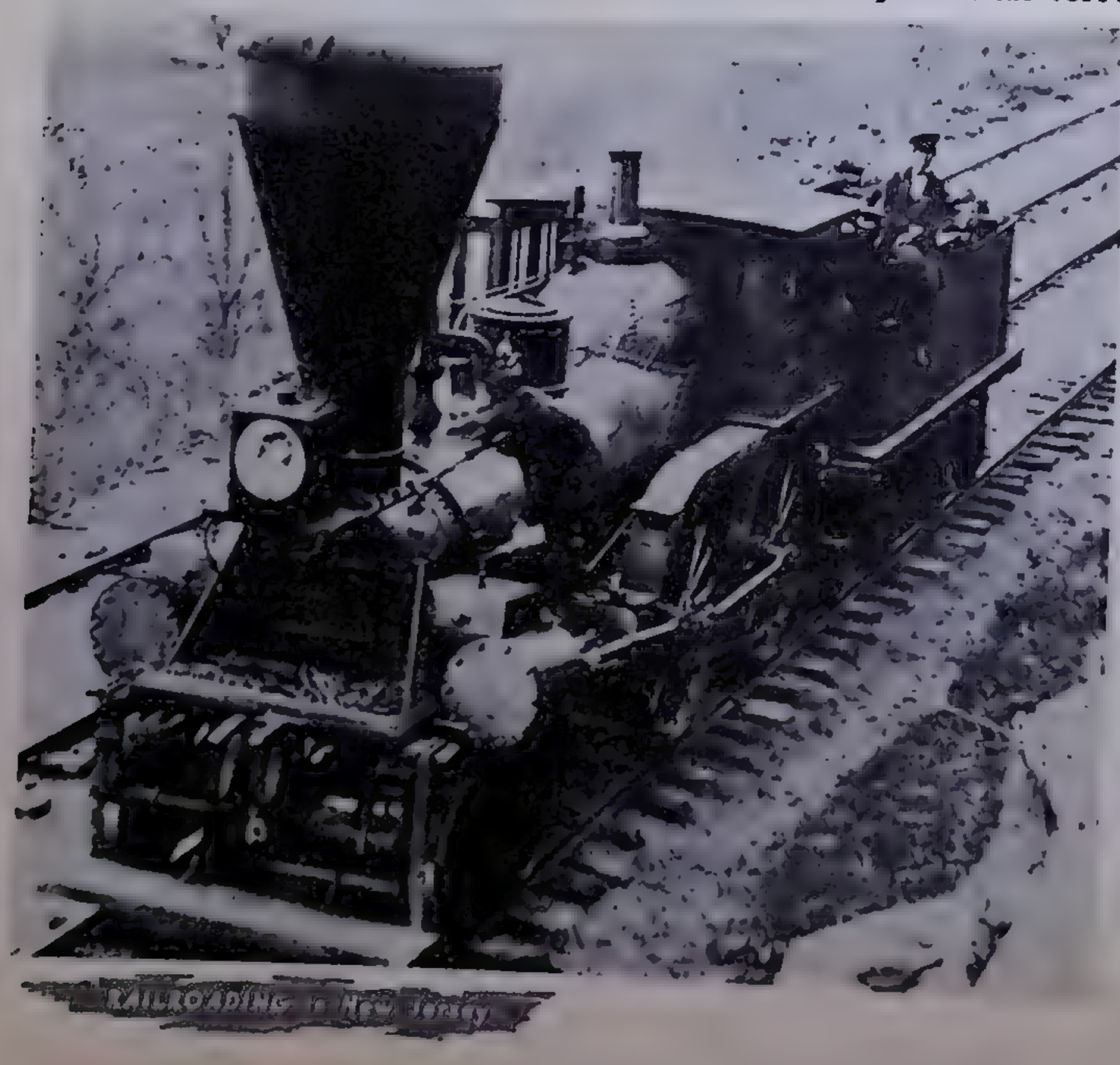

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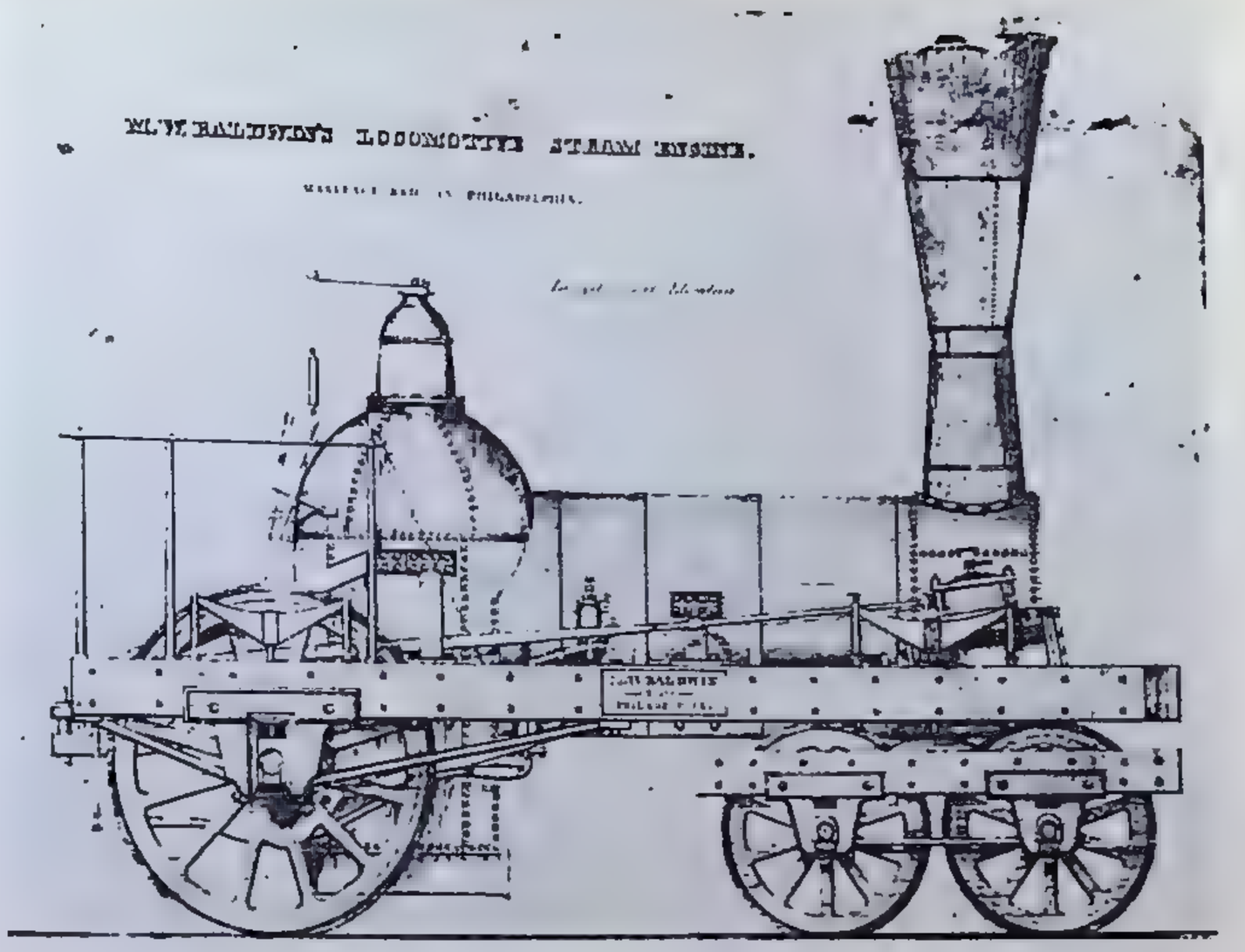

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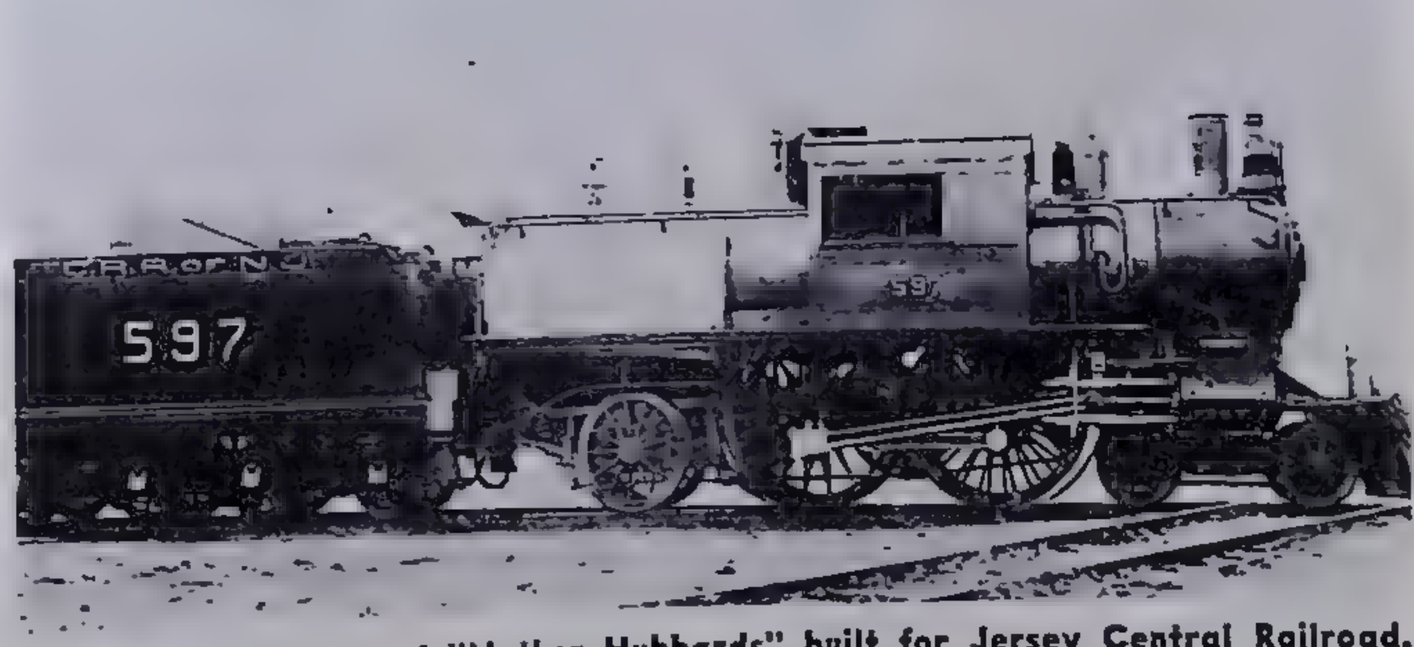

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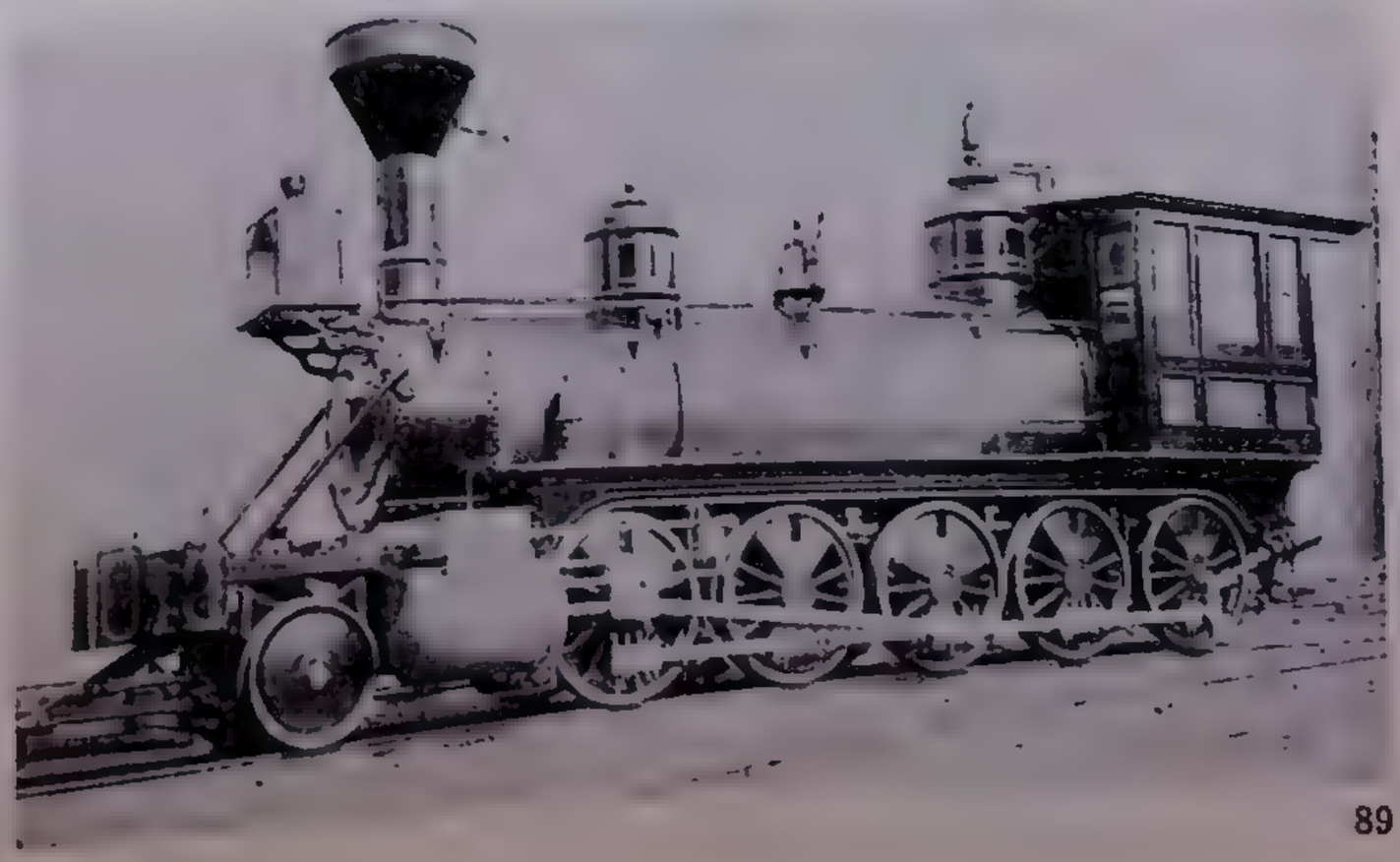
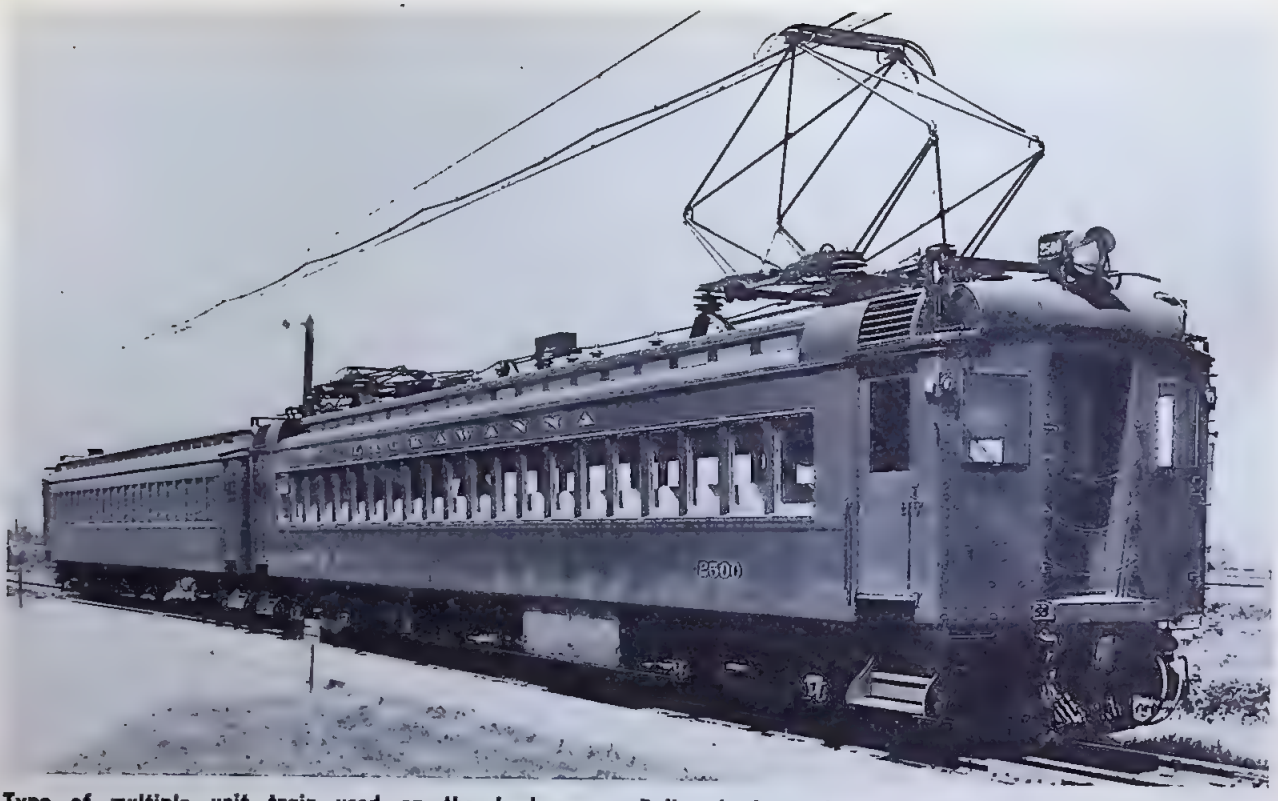




Type of multiple unit train used on the Lackawanna Railroad since electrification was accomplished in 1930.

1830, enthusiastically indorsed the free-moving cars which he developed in the Vernon garret. He went to England and returned as a first-rate railroad equipment authority.

Early in 1848 word seeped through the railroad world that Winans had developed a powerful eight-wheeler, named the "Camel."

"He calls it a 'Camel'," railroad men told one another. "Funniest looking thing you ever saw. Cabin perched up on the boiler. Powerful, though, they say."

It was powerful, even if the engineers failed to work up any enthusiasm for the cabin atop the boiler, particularly when a broiling Summer sun sent temperatures soaring.

Even more to be pitied was the fireman, who stood on a little footplate on the rear. Not only was he fully exposed to the elements; he also had the highly hazardous job of scrambling along a narrow running board to pour melted tallow through a valve to lubricate the engine. (Incidentally, this led to the still-used fireman's nickname of "tallowpot".)

Quickly a bitter controversy ensued.

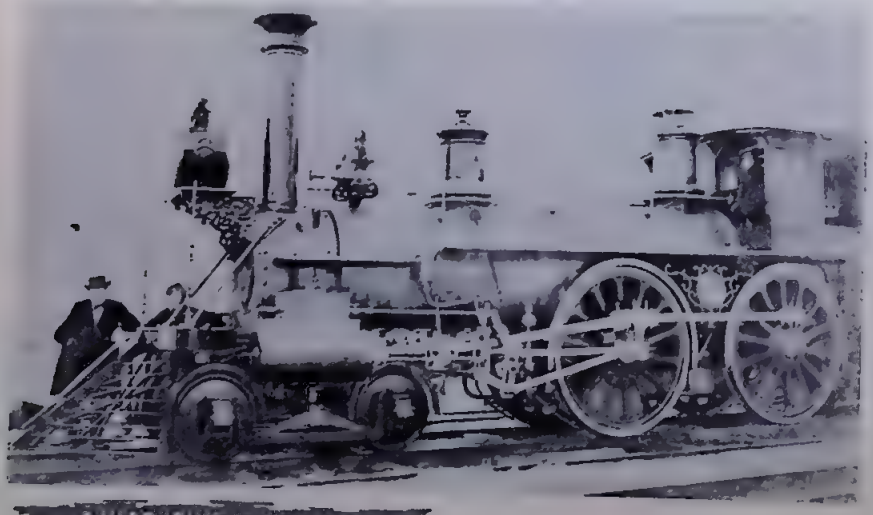
Elsewhere (Including on Winans's own B.&O.), locomotive planners had been developing "10-Wheelers" as the answer to hauling heavy loads over rough terrain. Their builders insisted they had it all over the slow and cumbersome (but powerful!) "Camel."

Winans fought back, in press and pamphlet. He even asked the B.&O. directorate, with remarkable candor, what would become of his prosperous locomotive plant if 10-Wheelers supplanted the "Camel"? Naturally, Winans pointed out, he wouldn't think of building anything else.

The "Camel" achieved no popularity in Jersey, mainly because a locomotive built in Paterson journeyed out to the Lackawanna coal fields one day in 1854 and easily defeated the "Camel" in a competition to determine anthracite coal burning capabilities. The superiority of the Paterson-built "Anthracite" helped hasten the end of the "Camel."

Of course most of the coal-haul-

Note oversized wheels on this engine built in Camden & Amboy's Bordentown shop.



Dieselization as symbolized by this three-unit Erie locomotive, has been a major railroad power development.

ing lines wanted to replace their wood-burning engines with coal-burners if they could, a desire prompted as much by a growing shortage of fence posts along the rights-of-way as it was by progressiveness.

The first anthracite engines were fired with huge chunks of coal and took the obvious name of "lump burners". The chunks were carefully screened from the small pieces —the "culm"—which were thrown away.

Why not, someone asked, sell the lumps and burn the "culm"? A good question. John E. Wooten, general manager of the Reading, set out to find the answer 12 years after the Civil War.

The problem was mainly in getting enough air to burn the anthracite, since fireboxes of the day didn't have enough grate area. Wooten devised a bigger firebox, built it right out to the clearance limits on either side. The "culm" burned perfectly.

There was a slight catch. The firebox was so wide that the engineer couldn't see around it.

Wooten's remedy produced one of the most popular locomotive types of all times—the "Camelback" or "Mother Hubbard", with its cab up forward of the firebox and astride the boiler.

Nearly all of New Jersey's coal carriers welcomed the "Mother Hubbards" and used them consistently through the years, until it became cheaper to import and burn soft coal in the fireboxes.

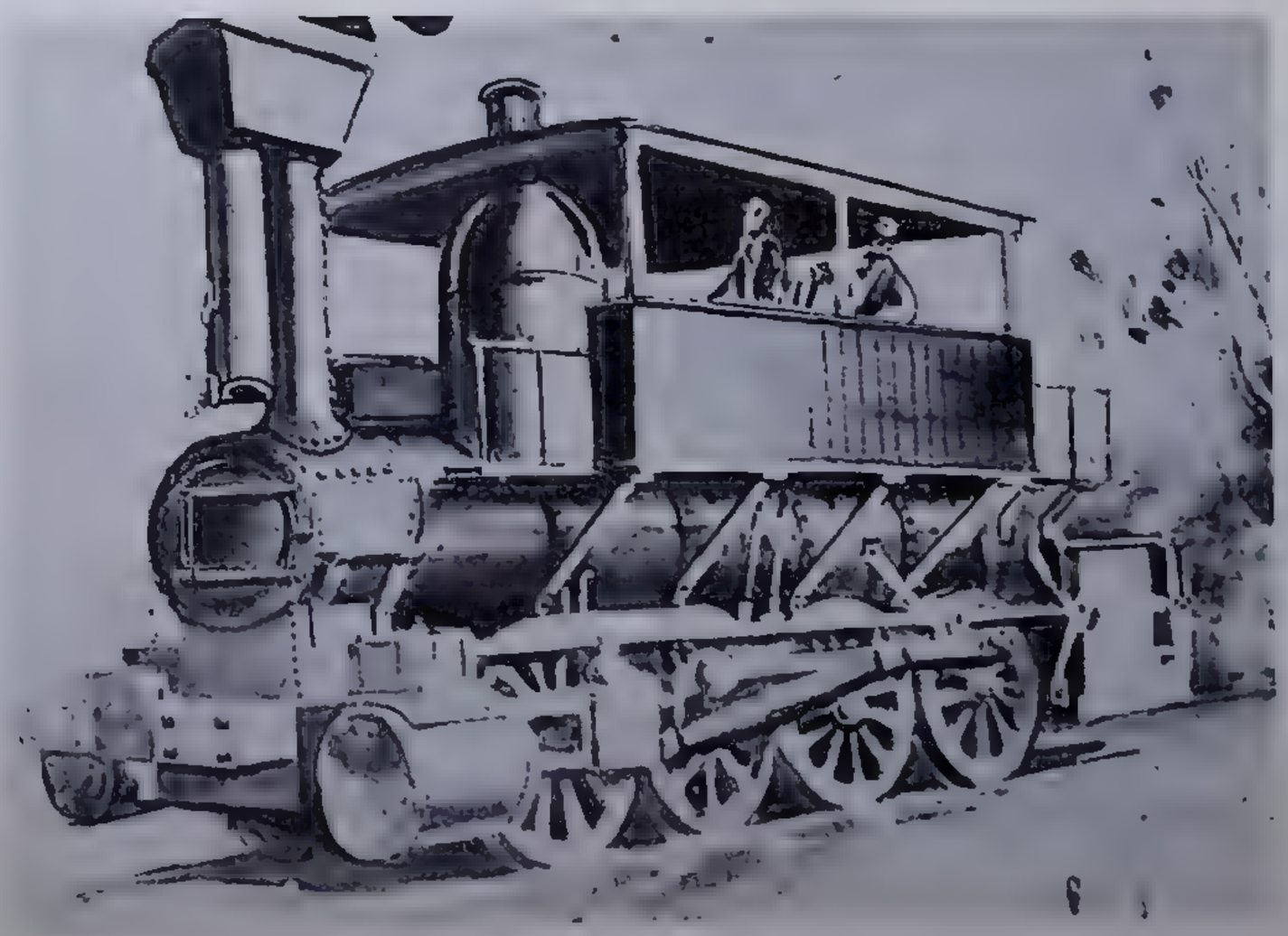
Finally the Old Lady was ruled out of contention in 1918, on the grounds that having the engineer up ahead in the cab and the fireman back with the firebox was not safe. However, railroads were permitted to keep in operation those they had. The Lackawanna, once one of the greatest devotees of the "Mother", now has none. The Jersey Central, on the other hand, still uses many of them in road service—and is, in fact, about the last stronghold of the "Mother Hubbard" in the country.

One of the greatest locomotives developed by a railroad traversing New Jersey was the Lehigh Valley's "Consolidation", the big heavy drag freight engine which had one of the longest periods of popularity of any American locomotive.

No doubt about the "Consolidation". It was husky, and more than good enough as long as freight was something to be moved at slow speeds. The practice at the Turn of the Century, as one Jersey Central man put it, was to "hook on everything from the Statue of Liberty to the Jersey City passenger terminal and let the freight drag to Mauch Chunk at 10 miles per hour."

Eventually the railroads became

Drawing of "Camel" developed by Ross Winans of Vernon, N. J., early in 1848.



Refurbished and streamlined, this "John Wilkes" locomotive was a top passenger mover on the Lehigh Valley.

more and more clogged with traffic. Some way had to be found to get the heavy freights rolling faster.

One answer was the "Mikado", first built for American railroads in 1902—after it had proved successful on Japanese railroads. The "Mike" was a "Consolidation" with a wider and deeper firebox (and two trailing wheels to support the added weight). The Lackawanna and Lehigh Valley used them extensively.

Obviously, with the slow freights wheeling over the rights-of-way more expeditiously, customers began demanding faster passenger service. That brought in the "Atlantics" and the "Pacifics", locomotives introduced to New Jersey in the late 1890's and the early 1900's, the era when every railroad had speed as its god.

Geography and topography hadn't changed any from earliest railroading days. The speedways still were the flat plains of Central and South Jersey. Everything rolled well and easily there on the tracks of the Pennsylvania or on the tracks of its rival, the Reading.

One of the oddest developments in that era was the Reading's "Bicycle" engine, used in fast passenger service between Jersey City and Philadelphia. It was the last effort to use a single driver—a latter-day Crampton—and the results were splendid from a speed standpoint, as long as only two or three cars were attached. In fact, the "Bike" often ran so fast it was difficult to stop.

The Lackawanna sought and found something new—the eight-wheeled engine usually called the "Northern", but known on the Lackawanna as the "Pocono" and the Lehigh Valley as the "Wyoming". The big sleek locomotives proved highly satisfactory in both freight and passenger service.

As the railroads searched, they came abaft of the dark—literally dark—days of World War I. Anthracite coal went to war, to be used on ships on the Atlantic which had to burn hard coal so that telltale black smoke could not be seen by German submarines.

There was no need to worry in the cities and the suburbs about submarines. All they had to worry about was soft coal smoke. The Lackawanna's proud boast that "Phoebe Snow" could dress in white and ride the Road of Anthracite to Buffalo went out in the swirl of soft coal smoke. Throughout New Jersey everyone complained about "The Route of Old Black Joe."

Soft coal made no friends for the railroads. It simply hastened the coming of new motive powers.

One answer to the soft coal problem made its first tiny mark in New Jersey in 1925, when the Jersey Central put a little 300-horsepower Diesel-electric to work in its yards. That little number "1000" Diesel was a forerunner of all such motive power in the country, although the big three-unit Diesels didn't come in quantity until the late 30's and early 40's.

Other railroads, particularly the

Jersey Central's 300-horsepower Diesel "1000," introduced to Jersey in 1925.

Reading's speeding "Bicycle" engine, used in service between Jersey City and Philadelphia, attained high speeds.

little lines, also started to experiment with such things as gasoline buggies on the rails. One good example was the little jitney the Morristown & Erie ran between Morristown and Essex Fells to give passengers some kind of service.

Elsewhere, on the big lines, railroads were turning for a closer look at the use of electrical power to move their payloads.

Even while all of the experimenting and searching for increased speed, power and efficiency in steam engines was going on, the flash of electricity was seen on state lines. It traced all the way back to the experimental electric railroad which Thomas A. Edison successfully operated at Menlo Park in 1880.

It took an out-of-state railroad —the B.&O.—to realize first the potentialities of what Edison had tried. It installed the country's first electric run in Maryland and for its efforts was showered with criticism, not the least of which was the somewhat illogical conclusion that electric trains were "socialistic".

The Pennsylvania made one big leap into the field when it built its new electrified line from Pennsylvania Station, New York, to Manhattan Transfer, near Newark, in 1910. The rest of the trip from Manhattan Transfer south was made with steam power, locomotives being changed at the Transfer.

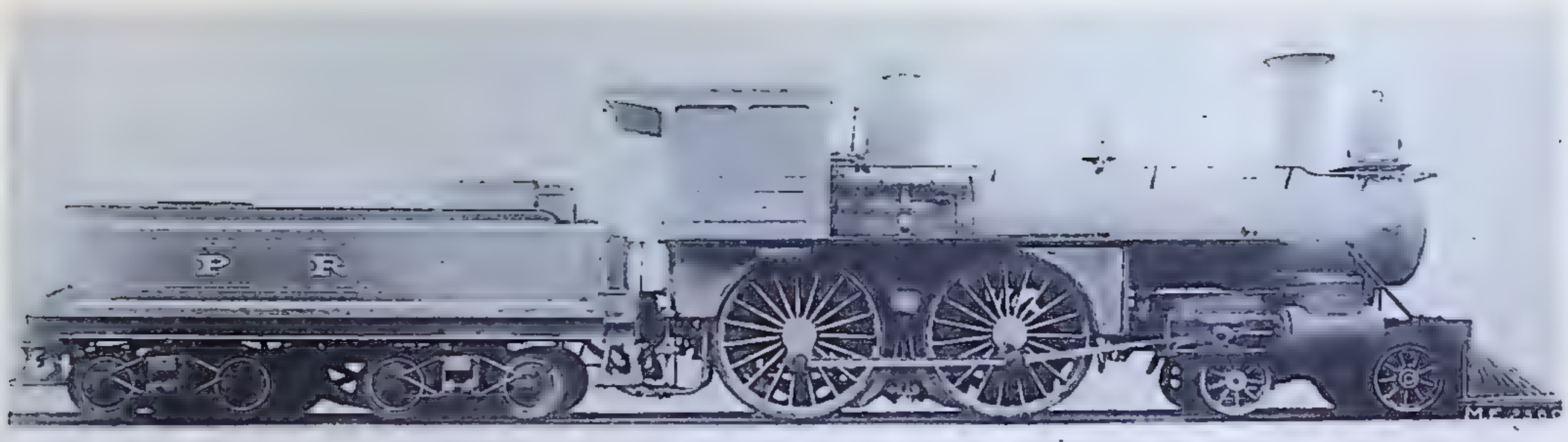
Everywhere the talk was of using electrical power. The Lackawanna visioned using the new driving force when it built its new station at Montclair in 1913, by making provisions for possible electric operation. Every railroad considered the possibilities, but not until the late 1920's was anything done on a major scale.

It was the Lackawanna which moved electrical operation a step ahead then, installing its overhead system as far as Montclair in 1930. School children marched to stations along the way to welcome the new trains gliding into platforms with strange silence. Thomas Edison, logically enough, drove the first electric train into Montclair on September 3, 1930. Before the year was out service reached Morristown and in 1931 the Lackawanna's overhead wires served both Dover and Gladstone.

Finally the Pennsylvania started its vast $200,000,000 program of electrification in the early 1930's, at the depth of the depression. Oddly enough, the bad times aided the work, because there were fewer trains running—thus lessening interference—and because labor and materials cost little. In addition, the Pennsylvania was fortunate enough to secure a government loan on excellent terms.

Through electric service from New York to Trenton was accomplished in 1933 and by 1935 the service extended to Washington. Results were immediate and obvious. The running time of the "Congressional Limited" to Washington was cut by 40 minutes. Freight traveled from Harrisburg to Waverly Yards in Newark in two hours less than previously.

Ford car fitted with flanged wheels was the "locomotive" on this odd "train" which traveled the Rockaway Valley ("Rock-a-bye Baby") Railroad in July, 1917.



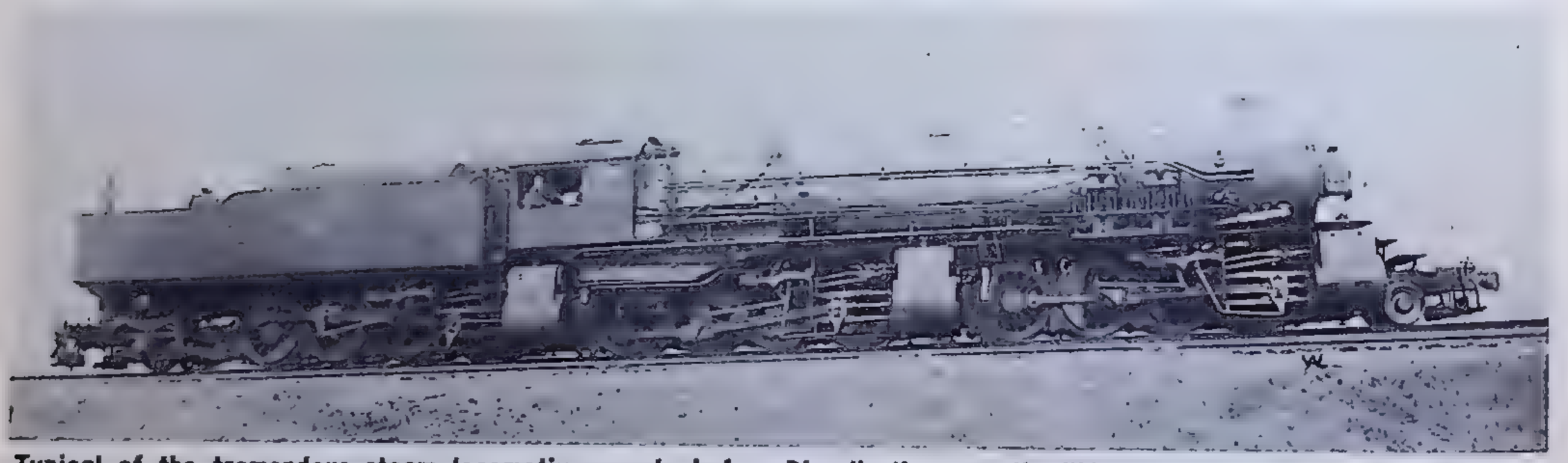
The first of the Pennsylvania's famous "K" class passenger locomotives, built at the Altoona shops in 1883.

The Diesels and electrics remove some of railroading's major motive problems. They are always ready, they are clean, fast and most efficient.

The Lackawanna's multiple unit electric cars end the need of turning locomotives around in terminals.

Now only the Erie and the Jersey Central (of the major commuter railroads) stick to steam in their suburban service, the Erie using "Pacifics" and the Jersey Central "Atlantics" — some of the latter dating back to the early 1900's. True enough they pour out black smoke and they soot the countryside —yet they remain a symbol of a glamorous past.

After all, who, with an ounce of romance in his soul, would trade a smoking, fiery steam engine roaring majestically over the rails in the twilight for an efficient Diesel?



Typical of the tremendous steam locomotives made before Dieselization was the "Matt H. Shay" of the Erie Railroad.

Morristown & Erie Railroad experimented with this jitney in 1926 in vain attempt to salvage passenger trade.

Top-hatted businessmen wait in the Chatham station for an 1880 commuter train drawn by diamond-stacked engine.

The Jersey Commuter

City Workers Braved Crude Railroading in Their Early Travels as Suburbanites

LET New Jersey's first commuter remain anonymous. It's much easier to picture him than to identify him—mainly because he probably didn't even recognize himself as a true commuter until he had been at the habit for at least two decades.

He knew, however, that he wanted to sleep in the country and work in the city, come high water or its traditional counterpart.

Certainly, however, that first commuter must have grumbled because there was not daily fulfillment of his naive hope that his scheduled train would be on time. Just as certainly he settled down day after day in the same seat on the same train and opened the same newspaper to the same page.

Occasionally he muttered about poor service and high fares, dirty cars and grimy windows. Later he joined his fellows and protested to the management about such matters and about other things like increased fares or unsafe trestles.

Naturally the management replied loftily that it was in the last analysis the commuter's fault. If he paid more money for his fare the service would be better.

Thus great-grandfather commuter tussled with great-grandfather railroad official. They were establishing a recurring pattern for the ages.

Few people who worked in New York had any notion of living in such "salubrious" spots as Paterson, Morristown or Plainfield when railroads started rolling in the 1830's. They were nice places to visit, but no place for a working New Yorker to attempt to live.

Still, in 1841, a Mr. Lathrop of Madison stepped up and planked down $100 for the privilege of riding the Morris & Essex Railroad between Madison and Newark for six months. At about the same time

Fare war of 1858 as caricatured by Charles F. Morse, son of the telegraph's inventor. Cartoon shows Old Mother Public Opinion spanking the two "naughty boys," Morris & Essex, while near-empty. Morris & Essex train leaves "Pluck" Station (now East Orange). Competing stagecoach is the Newark-bound "People's Choice," filled with "Oranges." Turtle symbolized railroad's slow schedule.

a Mr. King from Morristown, undaunted by the three-hour trip to New York, became a commuter.

Mr. King, it was noted, always took the precaution of standing, lest a loose rail (or "snake head") suddenly writhe up through the floor of the coach and impale him as he sat on one of the rough seats over the rails. Happily that hazard ended in a very few years with the widespread use of the "T" rail.

Meanwhile, many Newark merchants made numerous trips to Jersey City over the New Jersey Railroad (now part of the Pennsylvania). Some Paterson men found occasion to travel steadily between their healthful city and the busy port of New York; so many, in fact, that on November 28, 1843, the Paterson & Hudson River Railroad advertised:

"Persons wishing to commute for transportation at the present reduced price can enter into such an agreement by calling on the agent of the company."

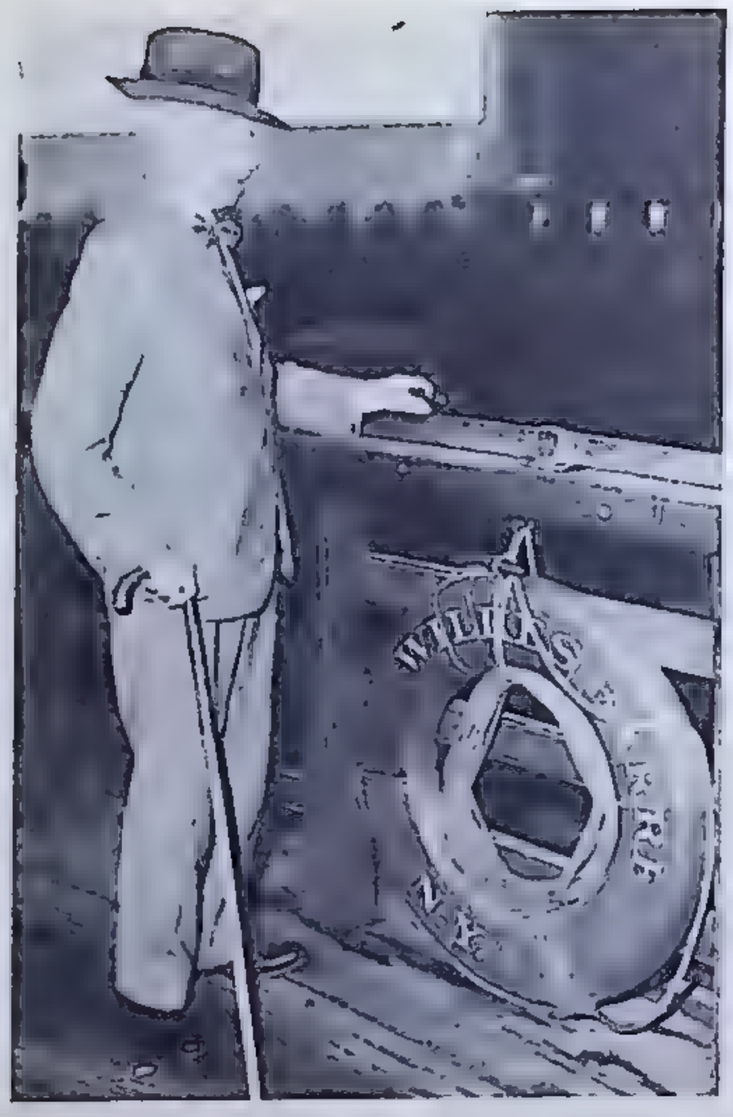
There is evidence that the agent didn't have a particularly cheap item to sell, because a Paterson editor in 1847 pointed out for all to see that the New Jersey Railroad toted a passenger 35 miles from New York to New Brunswick for 50 cents "and gives a ferry ticket in!"

Did the Paterson & Hudson River do anything so generous?

No. Not only did it charge the same amount for half the mileage, it didn't "give a ferry ticket in."

The consequence?

Why, of course, the editor wrote, it could be seen that Newark, Elizabeth, Rahway and New Brunswick were "improving rapidly." Paterson — despite its "romantic and beautiful scenery, its abundant markets and its healthful locality" —couldn't say the same.



A. C. Wilmerding, dean of Jersey Central riders, has commuted 70 years.

Elsewhere, commuters sometimes became such by chance. There was for example, Matthias Ogden Halstead, New York merchant whose firm was saddled in the late 1830's with a 100-acre farm in Orange, presented as part payment of a debt. Halstead journeyed out to look at the land.

He liked what he saw and ordered a handsome white home built not far from the railroad. Friends from New York liked the area, too, and they persuaded Halstead to cut up the farm and sell them lots. The Morris & Essex, for its part, agreed to stop a train each morning and each evening in front of Halstead's house. In return, Halstead built the first depot near "Brick Church" at his own expense.

One of the first official recognitions of commuters was a paragraph in Jersey Central's annual report for 1854:

"The increase in the local passenger and freight business is very large . . . owing to the fact that the easterly end of the line is peopling with parties residing in the country with their families but doing business in New York."

However, in 1856, the New Jersey Railroad had some unkind things to say on the subject.

In 1839, the N. J. R. R. declared in its 1856 report, ,commutation rates were inaugurated to accommodate "three heads of families" who wanted a yearly rate. The fare was set at $120, payable in advance. Scores of additional commuters had been added, the fare had dropped to $65 in 1856. Sad to relate, the dropping of the fare apparently induced some less moral characters to become commuters.

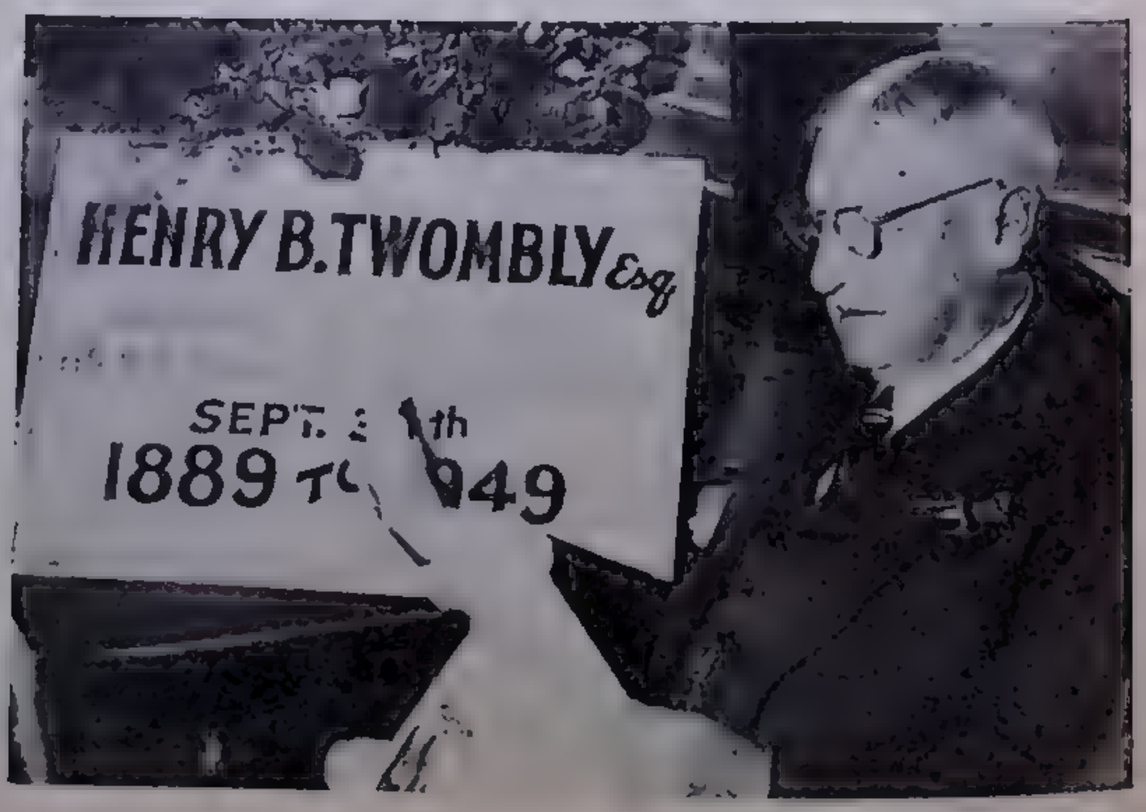
There were all too many cads and sharpshooters . . .

There were those who chiseled free rides on the ferries. Some wanted money refunded if they didn't ride for a full year. Others boasted they hadn't paid a fare for more than a full year. Several loaned their tickets freely to others, while a few rode back and forth several times daily. The worst blow of all—some even went so far as to alter dates or to forge tickets.

Often the violations "involved

Conductor Samuel Johnson Snyder receiving best wishes of passengers on last Erie trip after 69 years of service.

Henry Bancroft Twombly of Summit, honored by the Lackawanna Railroad in 1949 for his sixty years of commuting.



Madison station when Benjamin Harrison was the presidential candidate and long before the tracks were elevated.

persons of high respectability," the report concluded with unconcealed distaste.

It was bad enough to lose money on commuters, but to be cheated out of it . . .

The commuters had a few gripes themselves, and, in 1858 the good citizens of Orange exploded when the M. & E. announced a fare increase. Everywhere newspapers commented tartly that the railroad might better have lowered its fares and improved its service.

Others talked. Orange acted.

Commuters there organized a horse stage to take them to Newark, and rushed to buy tickets on the new Omnibus Line. They grinned appreciatively at the picture of a four-horse stage outdistancing a railroad car drawn by a turtle.

Orange papers insisted that the line did a thriving business—"beyond what its most sanguine friends predicted."

The railroad coolly ignored the matter (officially). Gradually, however, service got better (although the railroad archly refused to declare that the commuters' revolt had anything to do with the betterment). Customers drifted back and the Civil War doomed the horse line.

You commuters are a headache, the railroads declared . . .

Perversely, some railroads set about backing enterprises certain to mean more commuters.

The Erie, in Bergen County, advised persons desiring to live in that "mecca of suburban dwellers" to "lose no time in selecting your property." Such action was certain to make "your children and your children's children rise up and call you blessed."

Under Central Railroad President John Taylor Johnston, who himself lived in Plainfield, the New Jersey Central Land Improvement Co. was formed to build up areas along the line.

Naturally commuters came, and stayed.

There was no question by 1880 that the railroads had shaped New

An 1896 commuter train, consisting of a locomotive, tender and two wooden coaches, ready to leave Montclair.

Second station built in Morristown in 1866, replacing 1848 platform. This station has, in turn, been replaced.

Jersey's suburbs. Out through the state thin strips of growing villages and towns clung to the edges of the rails—winding torturously around curves with the Morris & Essex, having a reasonable degree of regularity along the Jersey Central and sticking closely to the tracks of the Erie and the Northern through parts of Bergen, Passaic and Essex counties.

Enough commuters of influential means had found a haven in Madison and Morristown by 1883 to induce the beginning of one of the state's most famous commuting trains—the "Morristown Banker's Express."

The de luxe train raced from Morristown every morning at 8:23 o'clock with no stops from Madison to Hoboken. At night it left Hoboken at 4:15 o'clock and streaked westward, first stop Madison. Any one who could arrive at work after 9 A. M. and leave before 4 P. M. could make the trip in 50 minutes.

Truly that polished train was an aristocrat. It had the right of way over everything on the railroad and the sight of its famous locomotive, the "Centennial," with Engineer Ben Day at the throttle, excited enthusiasm everywhere.

(A prosaic anonymous descendant of this famous train still runs, incidentally, even if with no fanfare, and is probably one of the country's oldest identifiable continuously-operated commuter trains.)

Once again, in 1888, Orange commuters were aroused, this time through a committee appointed by the New England Society to recommend ways of getting improved rail service. The recommendation led to a wooing of the Erie (then the New York and Greenwood Lake Railway), which agreed to supply "trains de luxe."

On Easter Monday passengers began riding horsedrawn stages to take the rival line. The revolt lasted about three months. Its end was hastened by improved M. & E. service and lessening of the novelty of riding early morning stages across town to get the train, rather than any feeling about the Erie—then referred to as the "commuter's paradise."

Daily riders to New York totaled 50,000 by 1900, with the number increasing rapidly as improved methods of starting and stopping trains came into being — making train trips both faster and more comfortable. Commutation got its greatest boost, however, when the Hudson & Manhattan tubes opened in 1908, giving the commuter that long desired weatherproof transit across the Hudson River.

Then all of the grievances between commuters and the railroads came sharply to a head, culminating in bitter clashes between 1910 and 1912. That wrangling led directly to the formation of the Public Utilities Commission.

Almost simultaneously, early in 1911, the major commuting rail-

This 1866 commutation ticket, on the Newark & Bloomfield Railroad, cost $30.

NEWARK & BLOOMFIELD RAILROAD COMPANY.

COMMUTATION.

No. 550 — 8 1 — 1866

Received from J. B. Osborne

Thirty Dollars in full, for a Privilege of Free Passage in the Passenger Cars of the Newark and Bloomfield Railroad Company, between Bloomfield and Newark from the First day of August 1866 to the 31st day of July 1867

The privilege of Free Passage is to be enjoyed ONLY by the above-named individual personally, and is in no manner to be transferred to, or used by another; it is subject to all the general rules and regulations of the lines, and the Ticket of the Free Passage is to be produced when required by the Conductors.

N. B.—The privilege of Free Passage to be **FORFEITED**, without repayment of the above sum, or any part thereof, upon any transfer of the Free Ticket for the use of any other than the above-named person, and in no case will any repayment be made in consequence of 1. a inability to use the privilege. Also subject to the rules and regulations of the Com[illegible] made from time to time.

Wm. T. Woodruff Treas.

Grove Street Station, East Orange, about 1890—in days when great weeping willows made it really "Grove" street.

roads announced increased fares. A hastily formed Commuters League of New Jersey, which carried the fight to the Interstate Commerce Commission, won a signal victory. The railroads were compelled to file new rate schedules.

The commuter, after 70 years, had won the right to argue with the railroads before an official rate-applying commission.

Most of the time, unless there arose the question of fare increase, the commuter has always been more average than individual in the rush of 250,000 people heading east in the morning and west in the afternoon. However, through the years, some personalities have emerged—generally because they had the travel habit for more than a half century.

New Jersey, in fact, has had a continuing succession of "champion" commuters. To mention any is to point up an absence of others, many of whom, unfortunately, continue to remain anonymous in the daily travels.

Take Frederick H. Smith of Newark, for example, acclaimed as "world's champion commuter" in 1913 in a New York newspaper contest. For 62 years he commuted between Newark and New York. That took him back to 1850—when commuting was really rough.

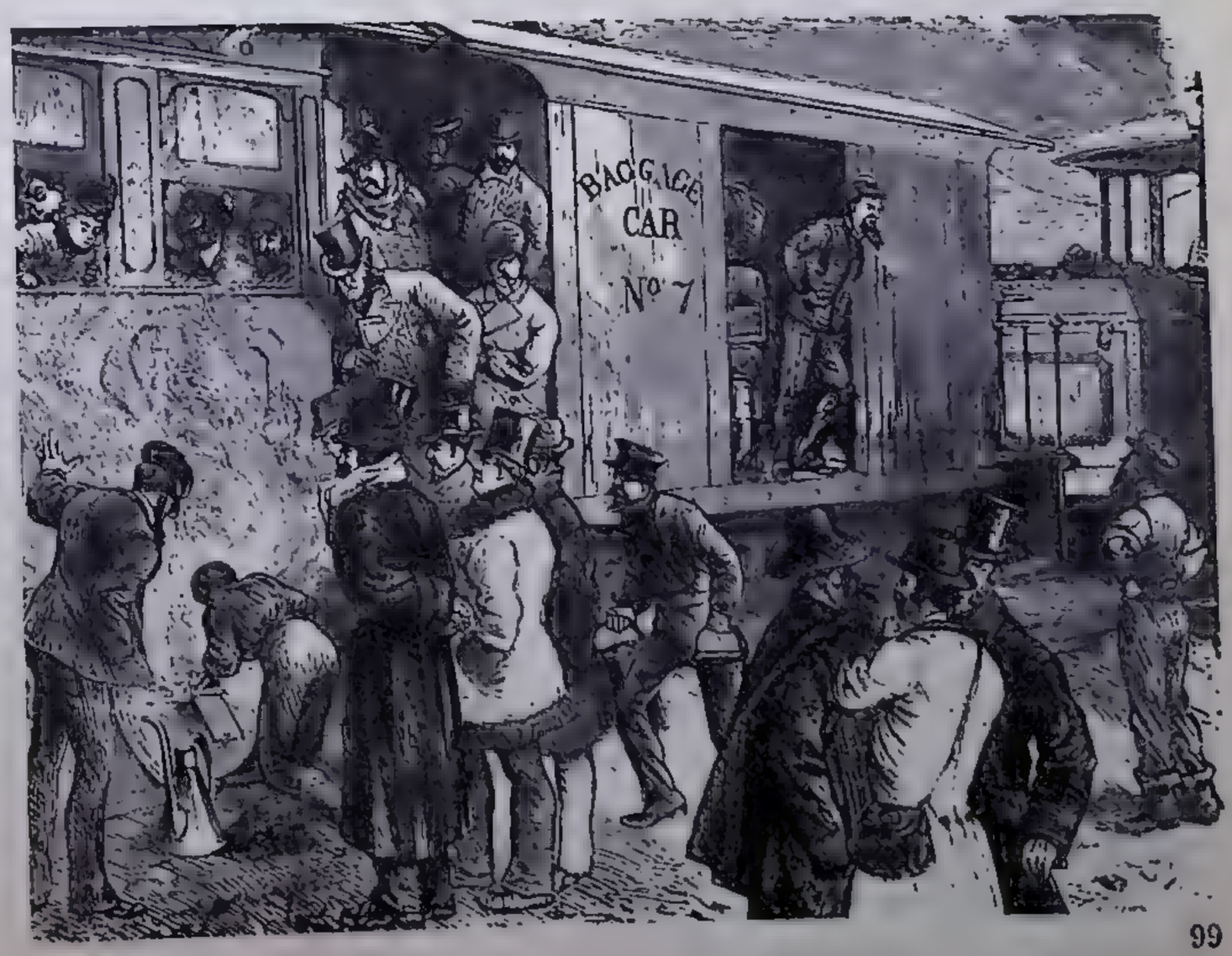
A flock of noted long-lived commuters who had started their daily treks in the late 1860's began to get newspaper attention in the '20's—including such famed ones as Captain John Hillyer Palmer of East Orange, Addison H. Day of Chatham, J. Z. Demarest of Closter, James H. Stout of Upper Montclair, Lucius F. Spencer of Passaic, Thomas N. Reeves of Newark and C. Symmes Kiggins of Elizabeth.

Kiggins, honored in 1926 when the Jersey Central opened its new bridge over Newark Bay, gave a beguiling word-picture of the early commuting days. He told reporters:

"Jerseymen were known by their dusters over in New York. We had to wear them or our clothes would have been wrecked by the smoke and dirt, not to mention the tallow drippings from the candles in the cars. There was tallow here, tallow there, tallow all over when I first started riding the Pennsylvania in 1859."

Kiggins switched to the Central in 1861, but there was tallow over there, too.

Since the beginning, commuters have piled off trains to "help" a train crew.



Paterson commuters boarding streamlined coaches of the Susquehanna Railroad.

Commuters waiting on Madison platform for one of Lackawanna's morning trains.

Stout, Spencer and Demarest were located by the Erie when it sponsored an "oldest commuter" contest in 1924. Spencer would have won, but he died just before the judging ended. Stout and Demarest both began commuting in 1867, but Demarest won the contest because he had a month's lead on the Upper Montclair man.

No sooner had the judging ended when Thomas N. Reeves of Newark told the papers: "That's nothing. I started in 1856 and commuted 68 years on the Pennsylvania."

Which points up the impossibility of singling out "oldest" or "champion" commuters at any time!

Chatham's Addison Day won considerable national fame between 1930 and 1934 as he continued his remarkable Lackawanna commuting record which started in 1868 and ended in June, 1934, just short of 1,000,000 miles of commuting. The Lackawanna threw him a party on his last trip home aboard the railroad president's private car.

The tales of such men were vitally important, because they were a link—about the last personal link—with the days of woodburning engines, candlelit coaches, primitive seats and crude railroading. All of them told about the same story, usually glossing over the hardships faced by a 19th Century regular.

All of the long-time commuters also remembered with affection the train crews who tended their daily runs.

For example, in 1903, the riders of the "Morristown Banker's Express" honored Engineer Ben Day and Conductor Dave Sanderson at a dinner marking the 20th anniversary of the fast-flying commuter special. Gold watches were presented Day and Sanderson as visible proof of the commuter's best wishes. Meanwhile, wives of commuters feted Mrs. Day and Mrs. Sanderson at another dinner and gave them a cash purse of $75.

One of New Jersey's most noted commuter conductors was Samuel Johnson Snyder of Upper Montclair, who wound up 69 years on the Erie Railroad in November, 1946.

Throughout the long years Snyder handled three generations of commuters, amounting to some 22,500,000 passengers. It took 2,500,000 miles of riding to pile up the total. Snyder's last trip was the occasion for great ceremony on the Erie—not the least of which were the expressed sentiments of dozens of older commuters.

In 1950, similar sincerity marked the "good-bys" of Lackawanna commuters to John H. Sutton of Morristown, who left his run after 51 years of railroading. Sutton's last day found him homeward-bound with an armful of gifts from those who had grown to like his cheerful morning and evening greetings.

Not all of the long-time commuters faded with the '30's. There are still some men who every day climb aboard their regular train to add to already stupendous commuting feats. Three are named here—there probably are others—because they were feted by their railroads in recent years.

The Lackawanna on September 30, 1949, honored Henry Bancroft Twombly of Summit as he wound up 60 consecutive years of commuting. A. Clinton Wilmerding of Plainfield, the unquestioned dean of Jersey Central commuters, is still traveling after 70 years. Another 60-plus man is John S. Payne of Wortendyke, who commuted from April, 1885, until June, 1946, aboard New York, Susquehanna & Western trains.

As a matter of fact, three 60-plus men are creditable, since it is difficult for a man to hit 50 years of commuting with retirement ages pegged at 65 or 70 (not that commuters mind retiring at 65, any more than any one else). Yet, with doggedness, the commuter can still pile up some huge mileage figures. Such a one is Paul Everitt of Hackettstown, who a few months ago wound up 46 years of commuting.

By leaving Hackettstown at 6:20 A. M. and returning at 7:10 P. M. Everitt was able to cram the 120-mile round trip into his day. He made enough such trips to total nearly 1,500,000 miles before he retired!

Such is the commuter and his heritage, and such will he be unless the age of the atom interferes.

He minds his own business and he gets his paper read. He seldom bands together with his fellow riders for mutual protection. Sometimes a train wreck, a fare increase or a cut in service will stir him, but generally as long as he gets the 7:24 eastbound in the morning and the 5:15 back at night he's collectively silent—with the qualification that he can become vociferous at any time.

Railroad Fans

Many Varieties of Railroad Fans Thrill to Engine's Roar and Click of Wheels on Rails

EVERY time the pioneer railroad builders laid a stretch of rail past a New Jersey farm or built a roundhouse in a village they created rail fans. Down through the years the whistle of a locomotive has called to all people, has drawn them along as surely as a magnet attracts iron filings.

There is no mystery in this unquestionably widespread affection for railroading. It's easy for any one, at any age, to become enthusiastic about thundering locomotives, headed for far-off places. This, combined with the traditional friendliness of train crews and the dramatic appeal of their work, makes rail fandom natural.

Small boys, of course, become rail fans as naturally as they climb trees. The intriguing thing is that the boys grow into men and in the growing find their railroad zest broadened and deepened.

The rail fan progresses through various stages, graduating from waving at an engineer to taking his picture or cataloguing his engine. He collects pictures, timetables and lanterns. Soon he decides to specialize in a single railroad or a single type of railroad. Ultimately he starts to explore the history of the railroad he has chosen as his "own."

Then he's well on his way to becoming a "permanent" rail fan; a rail fan senior grade.

Jersey's best known "permanent" railroad hobbyists are probably Thomas T. Taber of Madison and Walter A. Lucas of Hawthorne. Any discussion of rail fandom and the accomplishment of its devotees must start with them and go outward. Actually, Taber and Lucas typify the evolution of rail fans everywhere.

Not too surprisingly, Lucas and Taber have been friends since boyhood.

Walter was brought up in Paterson, an area known throughout the world for its locomotive builders. Railroading was Paterson's most honored profession as the 20th Century dawned and Walter's playgrounds were the shops and roundhouses. Taber grew up in residential Montclair and spent as much time as he could at the Lackawanna roundhouse where engines laid over. His many afternoons there in association with Engineers Bob Taylor, Bob Roden, Morris La-Touche and Clarence Baker propelled him along fandom road.

Both of the boys had cameras as soon as they were old enough to operate them. Soon after they met, about 1910, they set out to look for new worlds to snap, usually astride the temperamental "one lunger" motorcycle owned by Lucas. Often, too, they used special Sunday excursions sponsored by the Jersey Central or Lehigh Valley as an inexpensive way of expanding their knowledge and picture collections of "foreign" railroads.

Cameras ready, railroad fans are shown after piling out of their special, during a stop at a transfer point.

The amateur "black gang" of railfans who rebuilt Lackawanna Engine Number 952.

Walter and Tom can each identify a single incident prior to World War I which fixed for all time their hobby objectives.

The tablet placed in Madison station to climax "Railroad Appreciation Day."

Lucas at the time was struck by an advertisement in a Paterson paper of a forthcoming annual meeting of the Paterson & Hudson River Railroad. His inquiries brought him the unsatisfying information that the P. & H. R. was "just a trolley line to Edgewater." He decided to investigate further.

At about the same time Taber was chatting with Engineer Bob Taylor. "I wish you would think of some way for me to do something for you," said Tom, boyishly.

Bob thought for a moment. "Tom," he replied, "You can't do anything for me personally, but you can do something for all of us. You love and understand this railroad. Why don't you write a story about the Morris & Essex?"

Lucas went to work on an Erie track gang as a youth, worked his way up through the engineering departments of several railroads and a car building firm. Taber enlisted in the Marines in World War I and after his return from service worked and lived far from the tracks of his beloved Morris & Essex.

The P. & H. R. and the M. & E. railroads were temporarily shelved as the natural result of two men growing into new responsibilities. Then, at about the same time, the two revived serious work on major contributions to the field of railroad history.

Lucas started intensive digging into old newspaper and records in 1930 to compile the history of the Paterson & Hudson River, which he had long since learned was the railroad chartered in 1831 to link Paterson and Jersey City. It became an important part of the Erie's main line across Jersey in 1853.

Taber built a home in Madison and moved his family there in 1931. He was back on the line of his old love—the Morris & Essex (Lackawanna) and in renewing old railroad acquaintances recalled Engineer Bob Taylor's request.

"Why not?" mused Taber—and he too set about hunting up retired railroad men and digging in attics, museums and old book and antique shops.

Both research tasks were climaxed with books. Lucas published his "From the Hills to the Hudson" in 1944 and Taber finished "Commuter Railroad" in 1947.

The patience and perseverance required to track down a single railroad historical item can be shown in Lucas's search for an authentic drawing of the first locomotive on the P. & H. R. He knew that it had been built in England, but little else.

Months of careful digging in early New York newspapers finally netted him the information that a locomotive he believed to be the one he sought had been delivered in New York in 1836. Lucas reasoned that he was on the right track because the gauge was similar to that on the Paterson & Hudson River.

He wrote Robert Stephenson & Co. in England (still actively in business), giving dates and data which he had been unable to supply in previous correspondence. He was rewarded with a detailed description of the locomotive.

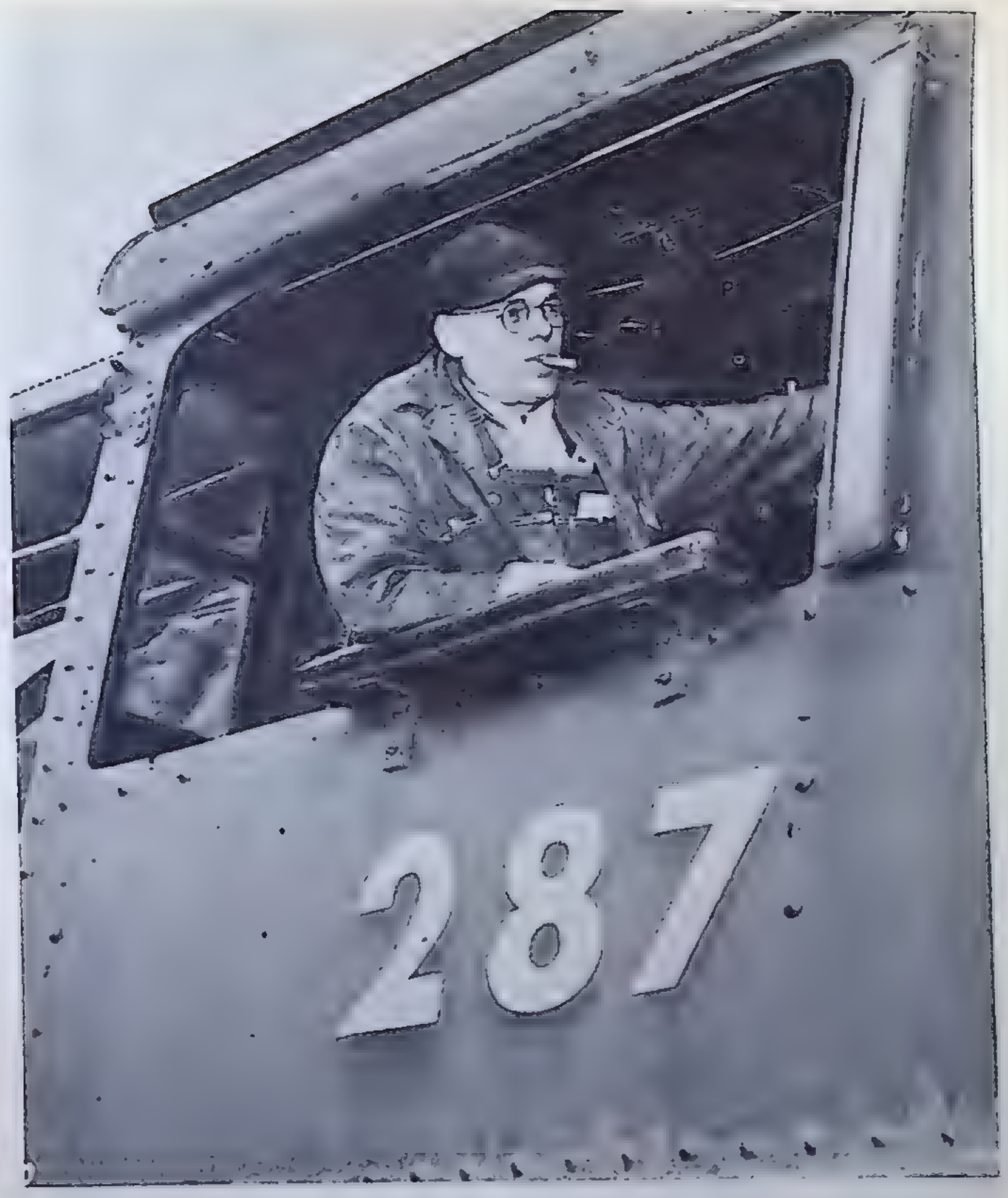
Taber had picture troubles, too. Because he settled in Madison his most earnest desire was a picture of locomotive No. 24, the "Madison." He tried in vain for years to find the missing picture. One day, without warning, a letter arrived from the son of the "Madison's" engineer saying he had heard of Tom's search. He had the picture at his home in Texas. Would Taber like to copy it?

Senior rail fans constantly perform volunteer and unremunerative jobs for the railroads which they cherish. Taber's experiences are typical.

At the Lackawanna's request he has furnished material for railroad exhibitions in connection with many community historical celebrations. He was instrumental in sponsoring a "Railroad Appreciation Day" in Madison in 1937, a day in which more than 8,000 people went through railroad equipment.

"Appreciation Day" was climaxed by the placing of a bronze tablet in the railroad station to commemorate the 100th anniversary of the arrival of the first train. That tablet, incidentally, is probably the only one of its kind in the nation.

Three years later, in 1940, Tom arranged Madison's contribution to the Morris County Bi-Centennial celebration. His contribution was a borrowed automotive model of an historic train which symbolized the theme of early days on the Morris & Essex.



Warren B. Crater of Roselle Park is both a railfan and a full-fledged engineer.

A contribution much different—and certainly unique—was Taber's

Walter A. Lucas on the way to Philadelphia in June, 1917, to photograph some locomotives. Lucas has retained his railroad enthusiasm through the years.

Trolley fans assemble for group photograph prior to leaving Newark on trip over line about to be abandoned.

spearheading of opposition to a bus line which sought a franchise which Taber felt would supply unequal competition to the railroad. Without prompting from the railroad, Taber fought the franchise in local meetings and at official hearings. He was mainly responsible for the denial of the franchise.

Lucas and Taber were leaders in organizing one of New Jersey's first rail fan trips, aboard a chartered train which traveled over the Lackawanna on July 19, 1936, to commemorate the 100th anniversary of the Morris & Essex.

Two years later the same group of fans approached President Davis of the Lackawanna with the idea of preserving and refurbishing of old Engine 952, the last of the famous commuter "Camelbacks" on the line. They found agreement from Davis that the locomotive should be exhibited at the New York World's Fair. The group did the lighter work on the engine, then turned the engine over to the railroad to finish.

As a sequel to the rebuilding of old 952 a new fan group was organized—the Railroadians of America, started in 1939 as an association of "those whose avocation is the study of railroading." One of the principal aims of the group was the establishment of a museum in the New York area for the preservation and exhibition of railroad memorabilia. That aim came to fruition last October when a Railroadian-sponsored permanent exhibit opened at the New Jersey Historical Society, 230 Broadway, Newark.

The exhibit includes a varied collection of photographs, maps, tickets, timetables and lithographs and such major items as locomotive headlights, signals, semaphores, engine bells and crossing gongs. Much of the material now on exhibition has been donated to the society from the personal collections of Lucas and Taber.

One of the prime items in the exhibit is a one-quarter size model of an old coal "jimmy," an exact copy of "jimmies" used to haul coal

An early photograph of Thomas T. Taber III, perched happily in locomotive cab.

on the Jersey Central 80 years ago. It was the gift of Warren B. Crater of Roselle Park, who kept it in his cellar for 13 years waiting for a railroad museum to open in New Jersey.

Crater is a different type fan from either Lucas or Taber—different because he is a full-fledged railroad engineer, something rare in rail fandom. Lucas, by way of contrast, is an associate editor of the "Locomotive Cyclopedia" and the "Car Builder's Cyclopedia" for the Simmons-Boardman Publishing Co. in New York. Taber, by way of greater contrast, is with a life insurance company (and also finds time to serve as a Madison Borough Councilman).

Coming from a railroad family —on both sides—Crater even married into another railroad family. He became a fireman on the New York Central in 1924 and the following year started his 25-year career on the Jersey Central. When he became a locomotive engineer in 1941 he "fulfilled a lifelong dream." It's a dream incidentally, which all railroad fans have at one time or another.

Long hours in the cab of a locomotive in no way lessen Crater's enthusiasm. He spends as much time as possible studying and arranging his collection of pictures, models and books or writing articles for the "Model Craftsman." Most of his articles concern the building of exact small-scale locomotive models, but he has also written many articles on railroading in general.

Rail fans of still another variety are Howard E. Johnston of Plainfield and Wilbur E. Wyckoff of North Plainfield, two of the state's leading trolley fans. Johnston is president and Wyckoff secretary of the North Jersey Chapter of the National Railway Historical Society—and as such are interested in all phases of railroading, although their primary love is the fast-vanishing trolley.

They had been pursuing trolleys all of their lives, but not intensively until 1932. That year, when on a trip to Stroudsburg, they were both suddenly struck with the fact that trolleys were "doomed."

"We began taking pictures like mad," says Johnston. "We went out to ride on last trips. Every time we had the chance we picked up some momento from a trolley due to be scrapped.

The result is that Johnston owns what is probably the largest collection of trolley pictures in the state. He has been on countless "farewell" trolley trips throughout the East.

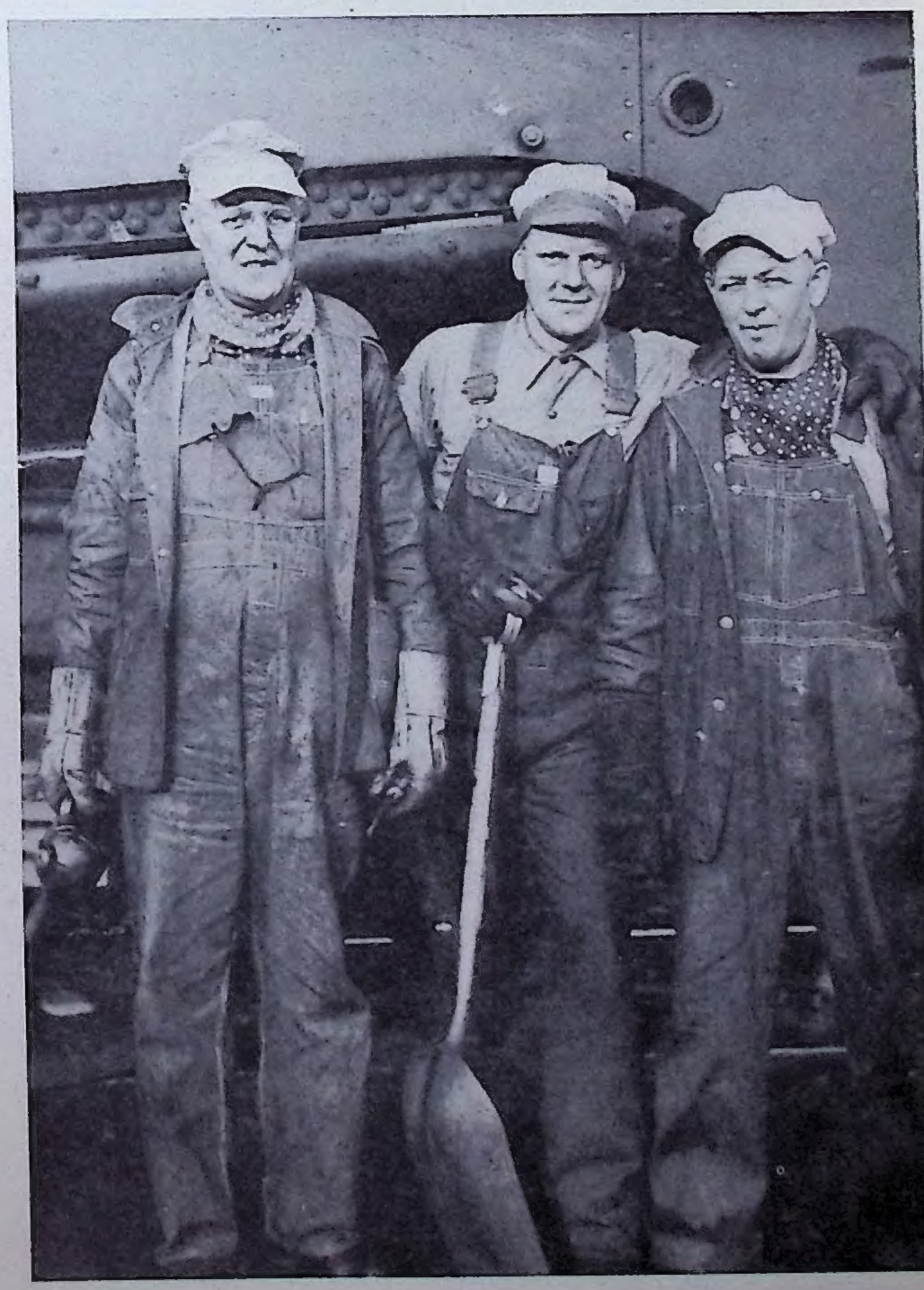
Trolley fans are museum minded, too, and in fact the Jersey group already owns what will be a basic component of any museum they establish. It's an open trolley car acquired from the Five Mile Beach Railway at Wildwood in 1945. Since then the trolley has been kept at Old Bridge, waiting for the day when the group can put up a building to inclose the trolley and exhibit the thousands of pieces of trolley equipment and appurtenances owned by the members.

Opinions differ among rail fans themselves at present as to whether or not rail hobbyists will thrive and increase.

Many rail fans believe that some of the railroad management has never understood or appreciated the rail fan fraternity nor appreciated their potentialities as a cadre of enthusiastic unpaid boosters. Rail fans sense a falling away from the days when railroads welcomed men and boys loaded with cameras and questions (although they still feel a welcome from train crews and most operating personnel).

Rail fans also complain that unless they are cultivated by the

Thomas T. Taber (center) with engine crew after hand-firing train from Hoboken to Scranton. Taber is one of New Jersey's outstanding railroad historians.



Despite discomforts of a gondola, like this one on the end of a Jersey Central train, it is favorite spot of fans.

railroads themselves they are liable to wither and perhaps die out altogether. The fans believe the loss will be greater to the railroads themselves than to the fans.

Nevertheless, in contemplating the future of rail fandom, the fact remains that young people still are highly susceptible to the fever.

There are scores of New Jersey boys and young men between the ages of 13 and 25 going through the same stages of evolution as their elders before them. Some are picture-takers, others are history minded. Some have specialized in individual lines or types of lines. A few, in fact, are far along the road to becoming "permanent" fans.

Tom Taber 3d, a graduate of Stevens Institute, is already the recognized historian of several of the state's short lines—particularly the defunct Rockaway Valley ("Rockabye Baby") and the very active Morristown & Erie. There is no question about how he became fascinated with railroading!

"Naturally my dad took me around to roundhouses while I was still a little boy and I became interested," comments Tom. "I didn't start out on my own hook until I was in the seventh grade, however. Then I decided to specialize in certain short lines."

One of Tom's contemporaries and close friends, Bill Young of Cranford, now an Army private stationed at Fort Belvoir, Va., is also a short line man, but his interest spreads to all such lines rather than being concentrated in a few. Bill was only 16 when he founded a little paper called the "Crown Sheet," devoted entirely to short lines.

An even younger fan is Ed Weber, Chatham High School student who has built up a large collection of station pictures while tracing out abandoned and little used lines. He also has a solid collection of more than 150 short line railroad timetables.

The Tabers—father and son—Lucas, Crater, Johnston, Wyckoff, Young and Weber. A few names out of the many hundreds who spend much of their waking time pursuing railroad lore. Yet they are representative.

They are representative because as normal people with widely varyinging interests they pursue the same hobby in varying ways. They are representative because they illustrate the vast appeal of railroading for all age groups and all professions.

There is just one group not under discussion at the moment—the little boys who are just beginning to wave at engineers. Tomorrow, however, they'll be snapping pictures and later they'll decide one railroad is to be enthused over more than any other. They'll be well on their way to an interesting lifetime of pursuing the steel trail and the iron horse.

Make way, "permanent" rail fans!

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This list includes material dealing both with New Jersey in general and with railroading in particular, but each of the books or pamphlets listed contributed materially to this study of Railroading in New Jersey. Not listed are the many newspapers and magazines consulted for pertinent information. In addition, much material was gathered through personally interviewing many people who have made a life study of Railroading in New Jersey.

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